



NEW WORLD  
MEDICAL

Humanity's Vision Is Our Focus

# The Ahmed® Glaucoma Valve





**Dr. A. Mateen Ahmed**

President & CEO - New World Medical

New World Medical is a high tech medical device company whose goal is to help humanity lead a better life through improved technology and innovation. Presently New World Medical focus is in different areas of Ophthalmology.

The Ahmed Glaucoma Valve has been successfully demonstrated to work in all types of glaucoma cases, particularly Neovascular, Congenital, and Uveitic glaucoma. New World Medical manufactures and markets its own products. In the U.S., New World Medical markets its products through a team of sales representatives. In the international market, the company has exclusive distribution network around the globe selling all over the world. Along with its own products, New World Medical also distribute human tissue such as sclera and pericardium.

The R&D division of New World Medical is actively involved in developing new products through collaborations with number of renowned medical universities and ophthalmologists around the world. These partnerships allow New World Medical to develop products through a first-hand involvement in the medical device industry.

Dr. A. Mateen Ahmed founded New World Medical, and serves as President/CEO and Chairman of the Board of Directors. The vision of Dr. Ahmed and New World Medical is to help the lives of people around the world. This has earned the company many accolades, including the “Have a Heart, International Goodwill, and Understanding Award” given by Soroptimist International.

# Mechanics of the Ahmed Glaucoma Valve

## The Venturi Effect:

To reduce internal friction within the valve system, the Ahmed Glaucoma Valve utilizes a specially designed, tapered trapezoidal chamber to create a Venturi effect to help aqueous flow through the device. The inlet velocity of aqueous entering the larger port of the venturi chamber increases significantly as it exits the smaller outlet port of the tapered chamber. In an Ahmed Glaucoma Valve, this increased exit velocity greatly helps in evacuating aqueous from the valve, thereby helping to reduce valve friction.

## Non-Obstructive, Self-Regulating Valve Mechanism:

The Ahmed Glaucoma Valve has no obstruction in its path of fluid flow. For the flow to be non-obstructive, a particle large enough to pass through the lumen of the tube, will easily pass through the much larger opening of the Venturi-Flow™ chamber. The elastic membranes help to regulate fluid flow at all times, consistently by changing their shape. The tension on these membranes is responsible of reducing hypotony.



$$\frac{P_1}{W} + \frac{V_1^2}{2g} + Z_1 = \frac{P_2}{W} + \frac{V_2^2}{2g} + Z_2$$

$$\text{SINCE } Z_1 = Z_2,$$

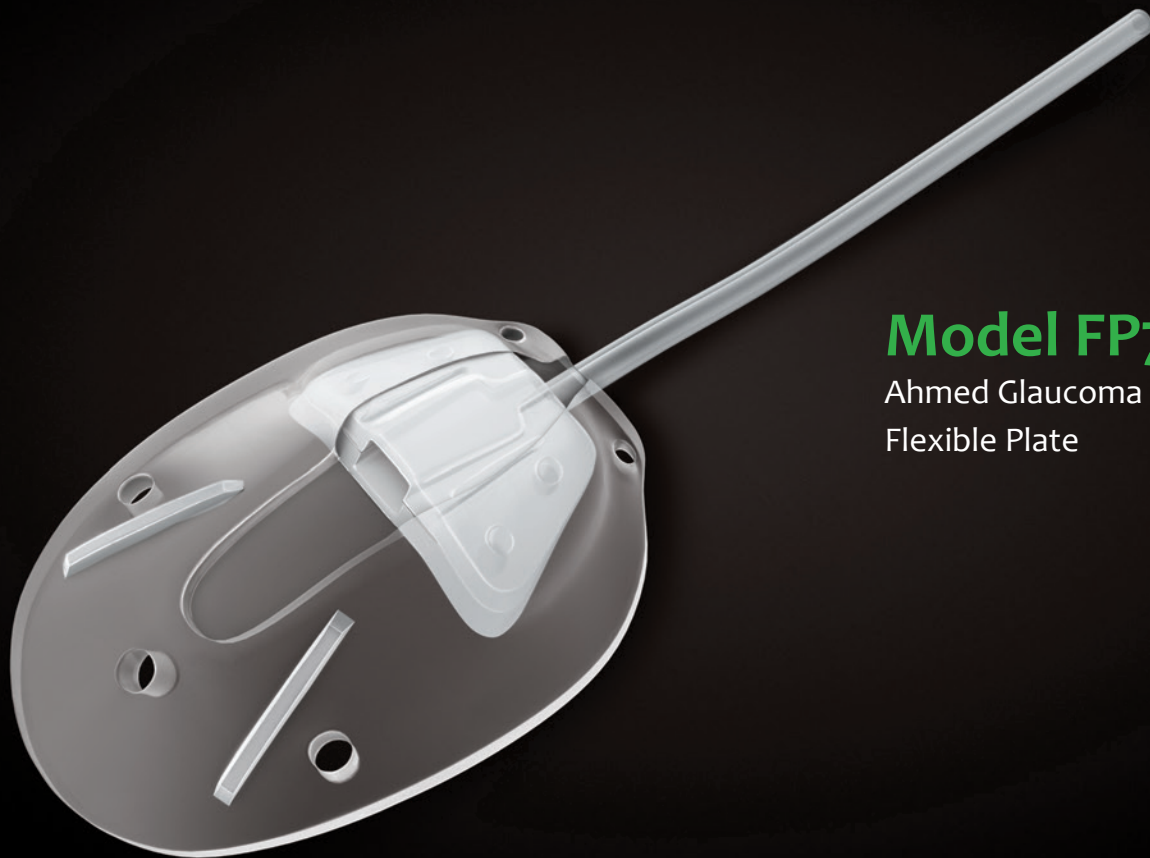
$$\frac{P_1}{W} + \frac{V_1^2}{2g} = \frac{P_2}{W} + \frac{V_2^2}{2g}$$

$$\frac{P_1 - P_2}{W} = \frac{V_2^2 - V_1^2}{2g}$$

$$P_1 - P_2 = \frac{W}{2g} [V_2^2 - V_1^2] \text{ -or-}$$

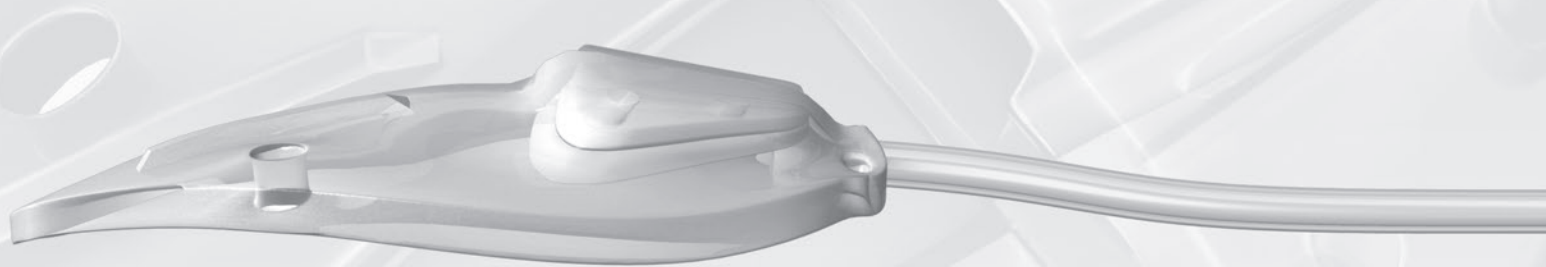
$$P_1 - P_2 \propto V_2^2 - V_1^2$$





## Model FP7

Ahmed Glaucoma Valve  
Flexible Plate



## Features:

- + Made of medical grade silicone
- + Immediate reduction of intraocular pressure
- + Unique, non-obstructive valve system to prevent excessive drainage and chamber collapse
- + Implanted in a single-stage procedure
- + Tapered profile for easy insertion
- + Silicone plate
- + Aqueous percolation holes
- + Thinner Plate

## Plate/Valve Specifications:

**Thickness:** 2.1mm

**Width:** 13.0mm

**Length:** 16.0mm

**Surface Area:** 184.0mm<sup>2</sup>

## Tube Specifications:

**Length:** 25.4mm

**Inner Diameter:** 0.305mm

**Outer Diameter:** 0.635mm

## Materials:

**Valved Plate Body:** medical-grade silicone

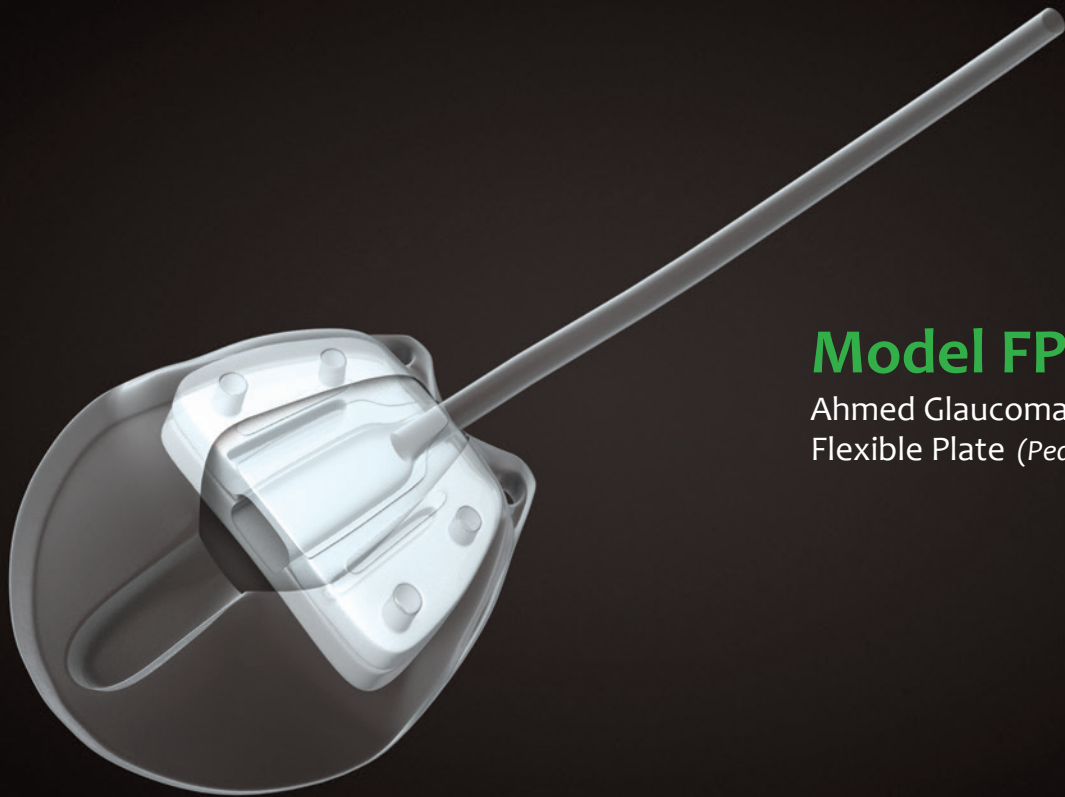
**Drainage Tube:** medical-grade silicone

**Valve:** medical-grade silicone, elastomer membrane

**Valve Casing:** medical-grade polypropylene

## Ordering Information:

**Model:** FP7  
(Ahmed Flexible Plate)



## Model FP8

Ahmed Glaucoma Valve  
Flexible Plate (*Pediatric*)



## Features:

- + Made of medical grade silicone
- + Used for pediatrics or small globes
- + Immediate reduction of intraocular pressure
- + Unique, non-obstructive valve system to prevent excessive drainage and chamber collapse
- + Implanted in a single-stage procedure
- + Eliminates drainage tube ligature sutures, “rip-chord” sutures, and occluding sutures
- + Thinner Plate

## Plate/Valve Specifications:

**Width:** 11.0mm

**Length:** 11.0mm

**Surface Area:** 102.0mm<sup>2</sup>

**Thickness:** 2.1mm

## Tube Specifications:

**Length:** 25.4mm

**Inner Diameter:** 0.305mm

**Outer Diameter:** 0.635mm

## Materials:

**Valved Plate Body:** medical-grade silicone

**Drainage Tube:** medical-grade silicone

**Valve:** medical-grade silicone, elastomer membrane

**Valve Casing:** medical-grade polypropylene

## Ordering Information:

**Model:** FP8  
(Ahmed Flexible Plate - Pediatric)



## Model S2

Ahmed Glaucoma Valve





## Features:

- + Immediate reduction of intraocular pressure
- + Unique, non-obstructive valve system to prevent excessive drainage and chamber collapse
- + Implanted in a single-stage procedure
- + Eliminates drainage tube ligature sutures, “rip-chord” sutures, and occluding sutures

## Plate/Valve Specifications:

**Thickness:** 1.6mm

**Width:** 13.0mm

**Length:** 16.0mm

**Surface Area:** 184.0mm<sup>2</sup>

## Tube Specifications:

**Length:** 25.4mm

**Inner Diameter:** 0.305mm

**Outer Diameter:** 0.635mm

## Materials:

**Valved Plate Body:** medical-grade polypropylene

**Drainage Tube:** medical-grade silicone

**Valve:** medical-grade silicone, elastomer membrane

## Ordering Information:

**Model:** S2  
(Ahmed Glaucoma Valve)

# Model TE

Tube Extender™



## Tube Extender Features:

- + Provides extra tube length
- + Provides leak-proof junction between tubes
- + Helpful when drainage tube is cut too short
- + Can be used with other drainage devices
- + Easily sutured onto sclera

## Ordering Information:

**Model:** TE (Tube Extender)

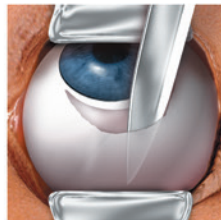
# Surgical Procedure

1.



The implant should be examined and primed prior to implantation. Priming is accomplished by injecting 1cc balanced salt solution or sterile water through the drainage tube and valve, using a blunt **26 gauge cannula**.

2.



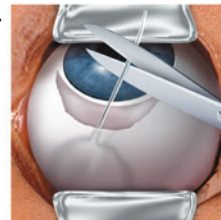
A fornix-based incision is made through the conjunctiva and Tenon's capsule. A pocket is formed at the superior quadrant between the medial or lateral rectus muscles by blunt dissection of Tenon's capsule from the episclera.

3.



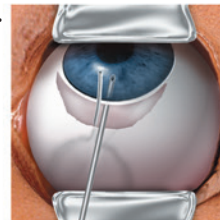
The valve body is inserted into the pocket between the rectus muscles and sutured to the episclera. The leading edge of the plate should be at least **8-10mm from the limbus**.

4.



The drainage tube is trimmed to permit a **2-3 mm** insertion of the tube into the anterior chamber (AC). The tube should be bevel cut to an anterior angle of 30° to facilitate insertion.

5.

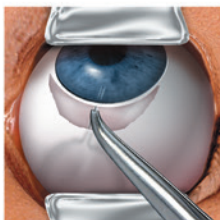


A paracentesis is performed, and the AC is entered at 1-2 mm away from the limbus with a sharp 23 gauge needle to create a needle track, parallel to the iris.

**Caution:** Care must be taken to ensure that the drainage tube does not contact the iris or corneal endothelium after insertion.

**Note:** Some surgeons prefer to enter the AC from at least 3mm away from the limbus.

6.

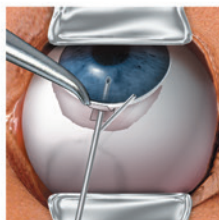


The drainage tube is inserted approximately **2-3 mm** into the AC through the needle track created in step 5.

7.



The exposed drainage tube is covered with a piece of preserved, donor sclera, pericardium, cornea, or other suitable patch graft material which is sutured into place and the conjunctiva is closed.



**NOTE:** As an alternative to Step 7, a 2/3 thickness limbal-based scleral flap may be made. The tube is inserted into the AC through a 23 gauge needle puncture made under the flap. The flap is sutured closed.

The steps illustrated here are intended as a **guideline only**, and do not represent recommended treatment for any particular patient. The use of any specific surgical technique or maneuver is at the sole discretion of the surgeon. Surgeons should be familiar with the use of glaucoma drainage devices and post-operative care considerations before implanting any drainage device. Reference papers and surgical video tapes are available upon request.

Patents No. 5, 071, 408  
Patents No. 5, 411, 473  
Patents No. 5, 785, 674

Patents No. 6, 261, 256  
Patents No. 5, 681, 275  
Patents No. 5, 616, 118

**Caution:** (U.S.) Federal Law restricts these devices to sale by or on the order of a physician.

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[www.newworldmedical.com](http://www.newworldmedical.com)

+1.909.466.4304

10763 Edison Court  
Rancho Cucamonga, CA 91730

**Customer Service in USA**

**800.832.5327**