

Characteristics Of The CardiaMed Heart Valve



The mechanical heart valve CardiaMed is a valve with a new innovative design. It has some distinguishing features like:

- The occluder is made as two leaflets that pivot from open position to closed position.
- The leaflets and valve housing are made of monolithic isotropic pyrolytic carbon. The sewing cuff is made of special warp knitted polyester fabric
- The valve housing is reinforced with a stiffening ring made of titanium alloy
The leaflets rotate around the central axis of the valve housing without restricting the rotating blood flow and eliminate the localization of all stasis zones in the bloodstream
- The valve generates the swirling of blood flow in the heart chambers thus improving the washing of inner cardiac structures
- The valve leaflets have a special aerodynamic shape for:
 1. Creating smoothly spreading blood flow;
 2. Prevention of blood flow turbulence;
 3. Speeding valve closure and opening.
- The valve generates a controlled regurgitant blood flow for proper washing of its hinge mechanism
- The valve has a barrier projecting above the sewing cuff, that protects valve orifice from pannus ingrowth that covers sewing cuff
- The valves are intended for aortic and mitral position. The tissue annulus diameters of the valve range from 17 to 33 mm. The valves are supplied with the sewing cuff of various shapes intended for the standard, intra-annular and supra-annular position of implantation
- The prosthetic heart valve CardiaMed is an advanced carbon valve. It has no need for compulsory orientation of the valve after suturing the prosthesis into fibrous ring due to its low profile and the unique feature of the CardiaMed valve, i.e. continuous rotation of the valve leaflets around the central axis of the valve housing, that facilitates the creation of blood flow that evenly washes both valve elements and surrounding heart tissues.

The patented CardiaMed valve is the next step in the evolution of heart valve replacements. It builds on the advantages of previous designs whilst avoiding their disadvantages.

New patented idea, that is, a free floatation of valve leaflets in the blood flow, is realized in the CardiaMed valve. Due to the concentric projection located on the inner surface of the valve housing with freely movable leaflets attached to it, it was possible to achieve not only a free pivoting of the leaflets from their closed position into their open position but also their rotation around the central axis of the valve housing.

The problem of leaflet orientation during valve implantation became a thing of the past. Now after suturing the valve into tissue annulus there is no need to rotate the valve within its sewing cuff, thus avoiding the risk of breaking the implanted prosthesis. The leaflets of the CardiaMed valve float freely in the blood flow and can change their orientation in accordance with the changing blood flow structure.

More than 70,000 implants made within 10 years have revealed no negative consequences related to this idea.

The high housing of the CardiaMed valve effectively protects its leaflets from surrounding structures as well as from pannus ingrowth into the valve orifice. Such valve design allows to use it successfully for operations with preservation of leaflets of the diseased valve or when placing artificial chordae.