



**aap Joints GmbH**  
**VarioCup Plus Acetabular System**  
**Instructions for Use (IFU)**

**IMPORTANT INFORMATION FOR SURGEON: PLEASE READ PRIOR TO IMPLANTING THIS DEVICE IN A CLINICAL SETTING. THE SURGEON SHOULD BE FAMILIAR WITH THE SURGICAL TECHNIQUE.**

**DESCRIPTION**

The VarioCup Plus Acetabular System consists of an acetabular cup, an acetabular insert and Peripheral Screws.

The acetabular cup is made of titanium alloy and coated with commercially pure titanium (CP Ti). The cup is for cementless use only and has with various sizes. The cup has two configurations: multi-hole and peripheral-hole. The cup has matching circumferential scallops that rotationally secure the insert in the cup and allow for dialing the insert in a desired orientation. The cup with screw holes have multiple anatomically placed holes, which accommodate optional Peripheral Screws to achieve initial fixation. Optional dome plug and screw plug are also available and can be used with the cup. The peripheral-hole cup has holes on the rim of the cup and should be used with 5.0mm Peripheral Screws. The acetabular cup can be used with acetabular insert made of Highly cross-linked Ultra-High Molecular Weight Polyethylene (HXL UHMWPE), Ultra-High Molecular Weight Polyethylene (UHMWPE) or Highly cross-linked Ultra-High Molecular Weight Polyethylene (HXL UHMWPE) with  $\alpha$ -tocopherol; can also be used with ceramic acetabular insert or CoCr liner.

The acetabular insert made of Highly cross-linked Ultra-High Molecular Weight Polyethylene (HXL UHMWPE) or Ultra-High Molecular Weight Polyethylene (UHMWPE). The insert is used with the titanium cup. The insert has different version including neutral, 15° hooded and high hooded. It can articulate with metal or ceramic femoral heads.

The Peripheral Screw is 5.0mm diameter with various length.

**Intended Use**

The VarioCup Plus implants intended for cementless prosthetic replacement of the acetabulum in total hip arthroplasty and are part of the VarioCup acetabular system.

**MATERIALS**

Acetabular cup, Peripheral Screw: Titanium Alloy (Ti-6Al-4V)

Coating: Commercially pure titanium (CP Ti)

Insert: Highly cross-linked Ultra-High Molecular Weight Polyethylene (HXL UHMWPE) or Ultra-High Molecular Weight Polyethylene (UHMWPE)

**HOW PRODUCT IS SUPPLIED**

Each component of the VarioCup Plus Acetabular System is supplied STERILE, is contained in individual boxes or packages designed to maintain sterility, and is available in a wide range of sizes. Please refer to the current price list, surgical technique or catalog for the catalog numbers and sizes available. aap Joints implant can be used with the instruments specifically designed for aap Joints implant and manufactured by Youshi Medical.

**INDICATIONS FOR USE**

The VarioCup Plus Acetabular System is designed for total hip arthroplasty.

The indications for use are:

- A. Non-inflammatory degenerative joint disease including osteoarthritis and avascular necrosis.
- B. Rheumatoid arthritis.
- C. Treatment of femoral neck or head fracture.
- D. Failed previous hip surgery.

**CONTRAINDICATIONS**

- A. Any joint with active or suspected latent infection.
- B. Neuromuscular disorders or mental conditions whereby the risks associated with these conditions are outweighed by the benefits to be derived.
- C. Any condition of the bone stock in which sufficient support and fixation of the implant is in question.
- D. Obese or overweight patients who may place undue loads on the prosthesis which can result in failure of the device.
- E. Any pathological conditions of the joint that would interfere in achieving appropriate range of motion, adequate head stability, and a well seated and supported prosthetic combination.
- F. Ligamentous or severe muscle laxity or inadequate soft tissue coverage to allow for the normal healing process and for proper hip mechanics to be reestablished.

**WARNINGS**

- A All components are sold sterile. If packages appear damaged or tampered with, they should be returned to the supplier.
- B Do not implant any device that has been used, even if it appears undamaged.
- C Do not bend or contour an implant, as this may reduce its fatigue strength and may cause immediate or eventual failure under load.
- D Machined taper surfaces of the acetabular cup and insert must be clean and dry at the time of assembly to ensure proper seating of the implant.
- E Never tamper with implants. Tampering may have a detrimental affect on the performance of the implant.
- F The surgeon and O.R. staff must be extremely careful to protect all components from being marred, nicked, or notched as a result of contact with metal or any abrasive objects. This is particularly important for polished bearing areas and machined taper surfaces.
- G Tight fixation of all cementless components at the time of surgery is critical to the success of the procedure. Each component must properly press fit into the host bone which necessitates precise operative technique and the use of specified instruments. Bone stock of adequate quality must be present and appraised at the time of surgery
- H Screws and plugs are to be fully seated to ensure stable fixation and to avoid interference with the acetabular liner component.
- I In order to minimize the risks of dislocation and loosening of the shell-acetabular bone interface that may occur when using a metallic shell intended for biological fixation, surgeons should consider providing immediate resistance to tensile forces between the metallic shell and the acetabular bone through the use of bone screws.
- J The insert may ONLY be used in conjunction with aap's metal and ceramic femoral heads.
- K Do not use the components with the products manufactured by other companies.
- L Do not re-sterilize any products
- M Please scrap any products removed from the patient in revision surgeries
- N Avoid Screw placement through the Shell into the anterior inferior and anterior superior quadrants of the acetabulum to prevent injury to the neurovascular structures.

The components in the VarioCup Plus Acetabular System have not been evaluated for safety and compatibility in the MR environment. The components in the VarioCup Plus Acetabular System have not been tested for heating or migration in the MR environment. The risks of exposure to MR include heating and/or displacement of a metallic implant. Image artifacts including dead zones and distortion may occur, especially in the immediate area around the implant, requiring optimization of imaging parameters. Please refer to current local MR safety guidelines for additional investigation, patient monitoring and patient follow-up advice. Recommend that a professional familiar with the specific MRI apparatus to be used, assess the patient prior to any MRI examination or therapy.

**PRECAUTIONS**

- A. Before any implant is used, the surgeon should be completely familiar with all aspects of the surgical procedure and the limitations of the device.
- B. It cannot be expected that joint replacements will withstand the same activity levels as normal healthy bone.
- C. Excessive physical activity may result in premature failure of the implant system due to loosening, component fracture, and/or wear. Activities which place unreasonable amounts of stress on the joint should be avoided. Patients should be instructed on the limitations of the prosthesis and how to modify their activities accordingly.
- D. Obese patients may place severe loading on the affected extremity which can be expected to accelerate joint failure. If appropriate, patients should be advised to follow a weight reduction or maintenance program.
- E. Prosthetic replacement is generally indicated only for patients who have reached skeletal maturity. Total joint replacement in younger patients should be considered only when explicit indications outweigh the associated risks of the surgery and modified demands regarding the activity and joint loading are assured.
- F. Proper selection of fixation type and placement of the femoral stem and acetabular component are critical factors in the prevention of unusual stress conditions and their potentially harmful effects on the life expectancy of the implant. The metal femoral head can't be used with the ceramic insert.
- G. Patients with pregnancy, cancer, children, breastfeeding women or the contraindications above for total hip replacement.

**ADVERSE EFFECTS**

- A. All prosthetic replacements have the potential for adverse effects, including infection, loosening, fracture, breakage, bending of the components, component disassembly, or positional changes of the components.
- B. Sensitivity or allergic reactions to component materials could occur, and should be ruled out preoperatively.
- C. Total joint replacement surgery is associated with serious complications including, but not limited to: bone fracture, nerve injury, direct arterial injury, false aneurysm, spontaneous vascular occlusion, deep vein thrombosis, ectopic ossification, non-union, dislocation, disassociation, superficial and deep infection, aseptic loosening, component failure, cement breakdown, and third party wear associated with polymethylmethacrylate or UHMWPE.
- D. Pain due to loosening of the implant, and/or localized pressure associated with incongruities of the fit, or tissue inflammation of unknown etiology.
- E. Periarticular calcification or ossification, with or without impediment of joint mobility.
- F. Inadequate range of motion due to improper selection or positioning of components.

- G. Undesirable shortening of limb.
- H. Fretting and crevice corrosion can occur at interfaces between components.
- I. Trochanteric avulsion or non-union as a result of excess muscular tension, early weight bearing, or inadequate reattachment.
- J. Problems of the knee or ankle of the affected limb or contralateral limb aggravated by leg length discrepancy, too much femoral medialization or muscle deficiencies.
- K. Reoperation may be necessary to correct adverse effects.
- L. On rare occasions, complications may require arthrodesis, Girdlestone procedure or amputation of the limb.
- M. Other complications generally associated with surgery, drugs, blood use, or ancillary devices used.

#### INFORMATION

Surgical techniques and additional information may be obtained from an Youshi Medical representative or the company directly.

#### STERILIZATION AND HANDLING

All metal components have been sterilized through Gamma radiation and all polyethylene components have been sterilized through an Ethylene Oxide sterilization process. Do not use any component if the package has been breached. Use caution in handling coated/porous components to prevent contamination of the coating/porous structure or entrapment of debris in the coating/porous structure.

**WARNING:** Single Use Only: This product is intended for single use only. Do not attempt to re-use, even if the device appears to be undamaged. Risks include device damage leading to poor performance or failure, patient cross-contamination, inadequate sterilization and general liability. Don't re-sterilize the components.

#### INTENDED USER

The product should be implanted only by orthopedic surgeons who are thoroughly knowledgeable in the implant's material and surgical aspects and who has been instructed as to its mechanical and material applications and limitations.

#### BRIEF OPERATION STEPS:


- Step 1: Shaping the acetabulum
- Step 2: Placing the acetabular cup
- Step 3: Placing the Peripheral Screw
- Step 4: Placing the acetabular insert
- Step 5: Shaping the proximal femoral bone
- Step 6: Placing the femoral stem
- Step 7: Placing the femoral head
- Step 8: Closing the incision

**Details please refer to Surgical Technique, which can be acquired from representative of aap Joints or service@aap-joints.com**













**PRODUCT STORAGE CONDITION:** Products shall be stored in a dry and clean place with room temperature condition and avoid sun-shining.

**CAUTION:** Disposal of single-use implant device. This device should be regarded as bio-contaminated and handled accordingly. Plastic or metal implants should be terminally sterilized and disposed of following existing hospital policies and procedures. The products have not been evaluated for safety in the Magnetic Resonance (MR) environment. **CAUTION:** FEDERAL LAW (USA) RESTRICTS THIS DEVICE TO SALE BY OR ON THE ORDER OF A PHYSICIAN.

**CE Mark on the package insert (IFU) is not valid unless there is a CE Mark on the product (description) label.**

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#### Symbols

	Manufacturer		Catalog number		Batch Code		Do not re-use
	Caution		Do not re-sterilize		Consult Instructions for use		Use by date
	Sterilized using irradiation		Sterilized using ethylene oxide		Keep away from Sunlight		Do not use if package is damaged