

## Multi-CF™ UHV Spherical Triangles: Vacuum Chambers with 2.75" and 1.33" CF Ports

### FOR USE IN:

- Miniature UHV Vacuum Chambers
- Portable Low-cost UHV Systems
- High-Complexity UHV Subsystems
- UHV Vacuum Manipulator Systems
- UHV Specimen Transfer Systems

### FEATURES / OPTIONS:

- Easy Access Spherical Workspace
- Multiple CF sealing surfaces (1.33", 2.75") cut on a hollow sphere
- Annular port Grabber Grooves with 2.75" Sealing Surfaces
- Unitary stainless steel 316L construction  
Titanium custom option also available
- No welds, inside corners, highly polished
- Precise Port Alignment (<0.1 degrees)



*Spherical Triangle Multi-CF™ UHV Miniature Vacuum Chamber MCF133-SphTri-A5 with five (5) 1.33" CF Sealing Surface Ports*

### Multi-CF™ Spherical Triangles

The Spherical Triangle Multi-CF™ UHV miniature vacuum chambers are based on a design of two main or primary CF sealing surface ports that are parallel and offset sections cut through a global hollow spherical form. A secondary series of three CF sealing surface ports are positioned in a plane perpendicular to the main surfaces and generally provides a polygon array of ports in the form of a *triangle*. These designs are precision CNC fabricated from a single piece of 316L Stainless Steel. The option of using various Titanium alloys is also available custom.

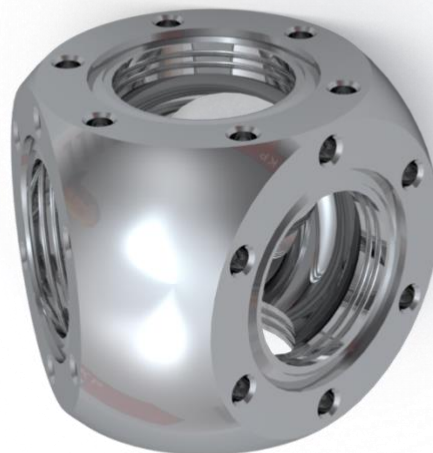
The Kimball Physics *MCF133-SphTri-A5* and *MCF275-SphTri-C5* are both five (5) port miniature UHV vacuum chambers.

The miniature *MCF133-SphTri-A5* chamber has five (5) 1.3" (A) CF sealing surfaces.

The larger compact *MCF275-SphTri-C5* has five (5) 2.75" (C) ports and also includes internal annular Grabber Grooves for secure and precise internal mounting of devices and apparatus.

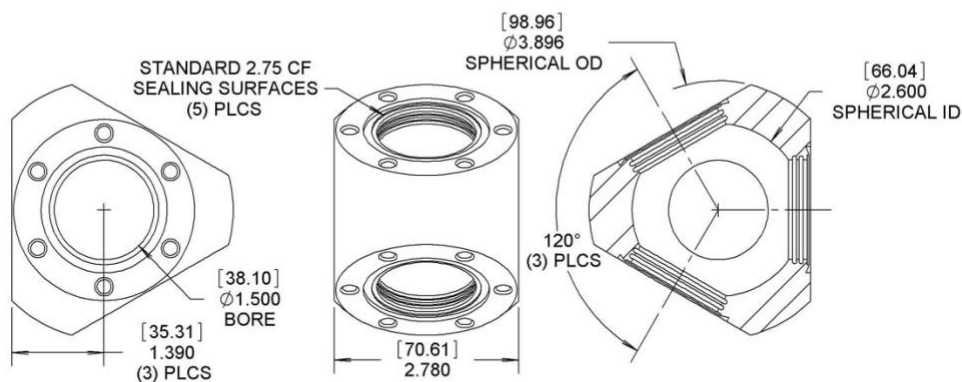
Groove Grabber clamps are available from Kimball Physics (Multi-CF Hardware).

Please reach out to Kimball Physics to engage our specialists if you need a custom system for your specific application.



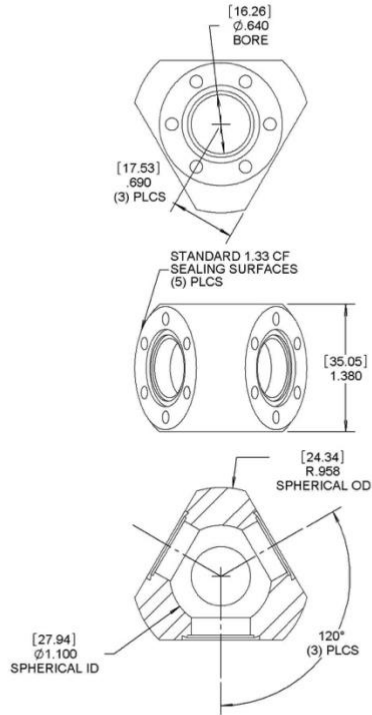
*Spherical Triangle Multi-CF™ UHV Miniature Vacuum Chamber MCF275-SphTri-C5 with five (5) 2.75" CF Sealing Surface Ports*

|                           | MCF133-SphTri-A5   | MCF275-SphTri-C5  |
|---------------------------|--|---|
| Multi-CF™ FITTING         | Spherical Triangle   |   |
| COMMON APPLICATION        | Miniature UHV Vacuum Chamber   |   |
| CONSTRUCTION / MATERIAL   | Stainless Steel 316L, various grades of Titanium available for custom fabrication.                                     |   |
| 1.33" CF SEALING SURFACES | Five (5) CF Sealing Surfaces (A) with (6) #8-32 tapped bolt holes. No grabber grooves are available on 1.33" ports.    | None  |
| 2.75" CF SEALING SURFACES | None   | Five (5) CF Sealing Surfaces (C) with (6) 1/4-28 tapped bolt holes, plus one pair of Grabber Grooves (internal annular grooves) per sealing surface |
| INTERNAL WORKSPACE        | Spherical I.D. 1.10" inch (27.94 mm)<br>Internal volume 0.80 in <sup>3</sup> (13 cc)                                   | Spherical I.D. 2.6" inch (66.04 mm)<br>Internal volume 11.4 in <sup>3</sup> (187 cc)  |
| EXTERNAL MOUNTING         | External Mounting options are available utilizing port flanges. Please see Flange Adapters on Kimball Physics website. | External Mounting options are available utilizing port flanges. Please see Flange Adapters on Kimball Physics website.                              |
| WEIGHT                    | Weight 0.44 lbs (0.20 kg)  | Weight: 3.00 lbs (1.36 kg)  |
| NOTES                     |  |   |



All Dimensions are in inches.  
(Millimeters are in parentheses)

### MCF275-SphTri-C5



MCF133-SphTri-A5

All Dimensions are in inches.  
(Millimeters are in parentheses)

## References

For more information about Multi-Port CF (MCF) Vacuum Chambers and Accessories, visit our website at: [Multi-Port CF Hardware \(MCF™ Hardware and Accessories\)](http://www.kimballphysics.com)

### Other References:

- MCF Vacuum Chambers Overview (Vacuum Chambers and Accessories)
- Spherical Octagon- Multi-Port CF Hardware
- Spherical Cube- Multi-Port CF Hardware
- Spherical Cube Expanded- Multi-Port CF Hardware
- Spherical Hexagon- Multi-Port CF Hardware
- Thin Flange- Multi-Port CF Hardware
- Close Coupler (non-rotatable)- Multi-Port CF Hardware

### Notes:

#### 1. Cautions:

- Silver Plated Bolts or Equivalent Lubrication must be used.
  - Please measure the hole depth and other flange / copper ring / part thicknesses
  - Choose a correct bolt length such that the bolt doesn't bottom in the tapped hole prior to tightening the structure.
2. 3D Solid Models of all parts shown are available as STEP files.  
They can be downloaded from Kimball Physics Website for interactive visualization and measurements in your CAD software environment.
3. Specifications Subject to Change Without Notice.
4. Images are not to scale
5. DE Altobelli, DT Taylor 2/22/2023

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