

## Multi-CF™ UHV Spherical Pentagon: Vacuum Chambers with 6.0", 2.75" and 1.33" CF Ports

### FOR USE IN:

- Compact UHV vacuum chambers
- Portable low-cost UHV systems
- High-complexity UHV subsystems
- UHV specimen transfer systems

### FEATURES / OPTIONS:

- Easy access UHV Chamber
- Multiple CF sealing surfaces (6.0", 2.75" and 1.33") cut on a hollow sphere
- Unencumbered 4.8" diameter workspace
- Annular port Grabber Grooves at 6.0" and 2.75" CF sealing ports for internal mounting.
- Unitary stainless steel 316L construction. Titanium custom also available
- No welds, no inside corners, highly polished
- Precise Port Alignment (<0.1 degrees)



*Spherical Hexagon Multi-CF™ UHV Vacuum Chamber  
 MCF600-SphPent-F2C5A2 with 6.0", 2.75" and 1.33" CF  
 Sealing Surface Ports*

### Multi-CF™ Spherical Hexagons

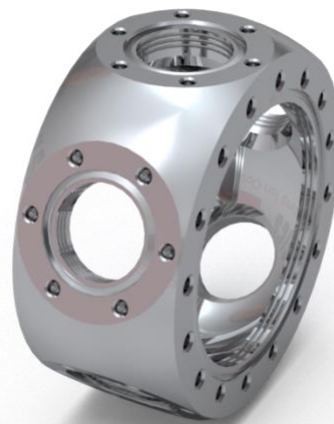
The Spherical Pentagon Multi-CF™ UHV vacuum chambers generally have 7 ports that are based on a design of two larger main or primary CF sealing surface ports that are parallel and offset sections cut through a global hollow spherical form. A secondary series of five smaller CF sealing surface ports are positioned in a plane perpendicular to the main surfaces and generally provides a polygon array of ports in the form of a *pentagon*. The five ports are not equi-spaced in the spherical pentagon (see drawings), but rather the angular spacing has been optimized to accommodate optional additional smaller ports. 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.

### 6.00" Multi-CF™ Spherical Hexagon

The Kimball Physics *MCF600-SphPent-F2C5* and *MCF600-SphPent-F2C5* 6.0" Spherical Pentagons are seven and nine port Multi-CF™ compact UHV vacuum chambers respectively. Both chambers have two (2) 6.0" (F) main sealing surfaces and five (5) 2.75" (C) CF secondary sealing surfaces. The "F2C5A2"

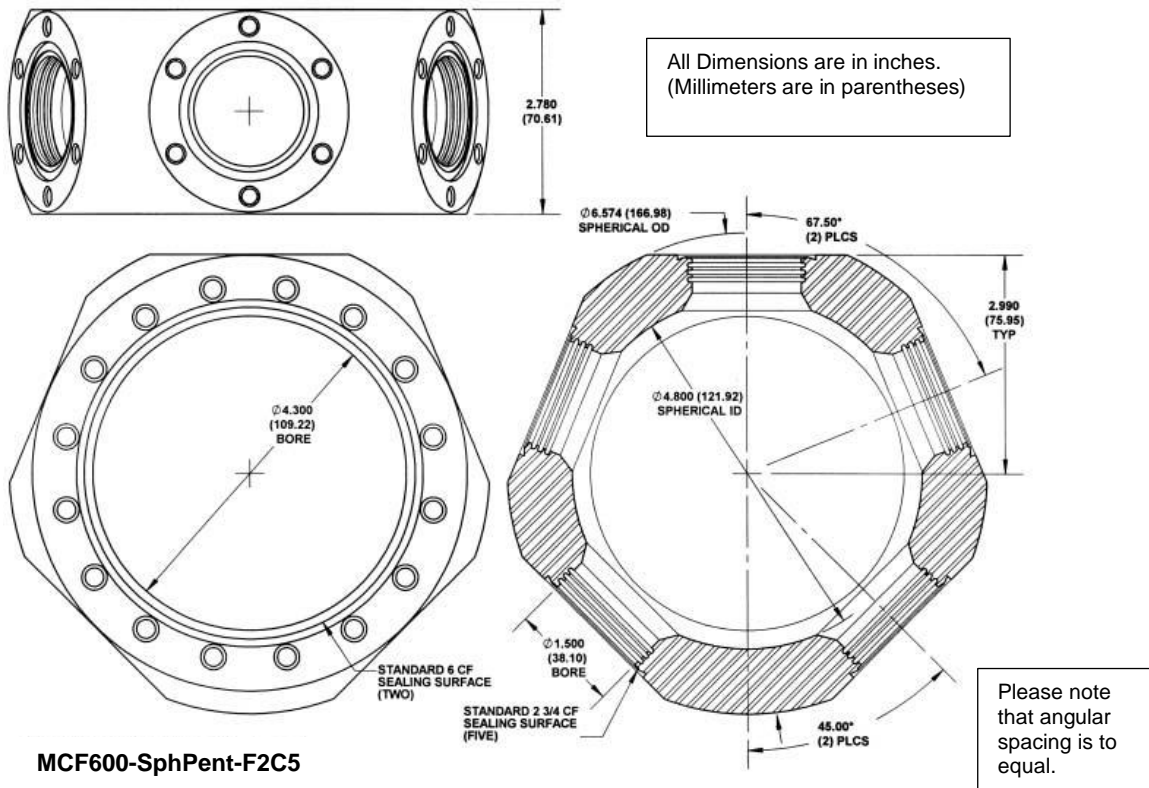
chamber also has two (2) additional 1.33" (A) CF sealing surface ports. The Kimball Physics The 6.0" and 2.7" have internal annular Grabber Grooves that enable stable internal mounting of fixtures, devices and apparatus. Groove Grabber clamps are available from Kimball Physics (Multi-CF Hardware).

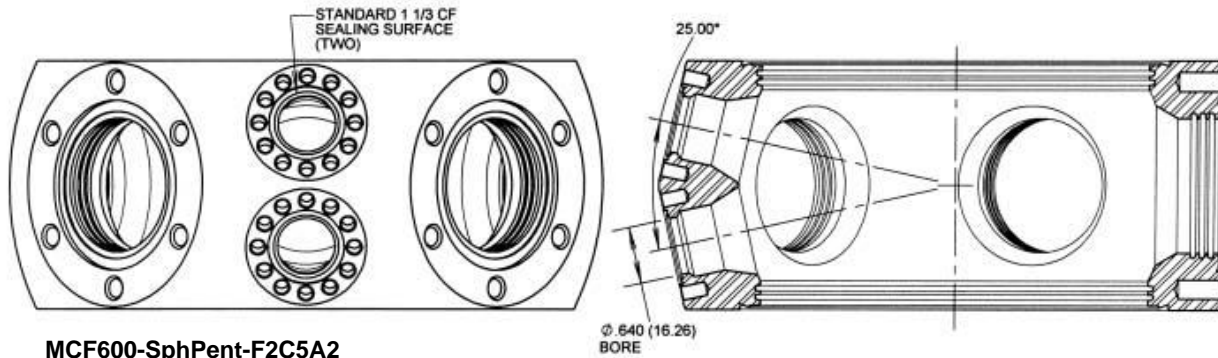
Please reach out to Kimball Physics to engage our specialists if you need a custom system for your specific application.



*Spherical Hexagon Multi-CF™ UHV Vacuum Chamber  
 MCF600-SphPent-F2C5 with 6.0" and 2.75" CF Sealing  
 Surface Ports*

	MCF600-SphPent-F2C5	MCF600-SphPent-F2C5A2
Multi-CF™ FITTING	Spherical Pentagon	
COMMON APPLICATION	UHV Vacuum Chamber	
CONSTRUCTION / MATERIAL	Stainless Steel 316L, various grades of Titanium available for custom fabrication.	
1.33" CF SEALING SURFACES	None	Two (2) CF Sealing Surfaces (A) with (12) #8-32 tapped bolt holes. No grabber grooves are available on 1.33" ports.
2.75" CF SEALING SURFACES	Five (5) CF Sealing Surfaces (C) with (6) 1/4-28 tapped bolt holes, plus one triplet of Grabber Grooves (internal annular grooves) per sealing surface	Five (5) CF Sealing Surfaces (C) with (6) 1/4-28 tapped bolt holes, plus one triplet of Grabber Grooves (internal annular grooves) per sealing surface
6.0" CF SEALING SURFACES	Two (2) CF Sealing Surfaces (F) with sixteen (16) 5/16-24 tapped bolt holes, plus one pair of Grabber Grooves per sealing surface	Two (2) CF Sealing Surfaces (F) with sixteen (16) 5/16-24 tapped bolt holes, plus one pair of Grabber Grooves per sealing surface
INTERNAL WORKSPACE	Spherical I.D. 4.80 inch (121.92 mm) Internal volume 52.5 in <sup>3</sup> (861 cc)	Spherical I.D. 4.8 inch (121.92 mm) Internal volume 53.4 in <sup>3</sup> (875 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: 8.73 lbs (3.96 kg)	Weight: 8.42 lbs (3.82 kg)
NOTES	The (5) 2.75" Sealing Surfaces are not equally spaced in the spherical pentagon planer geometry. Please see drawings for details.	





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-CF Hardware \(MCF™ Hardware and Accessories\)](http://Multi-CF Hardware (MCF™ Hardware and Accessories))

### Other References:

- MCF Vacuum Chambers Overview (Vacuum Chambers and Accessories)
- Spherical Octagon- Multi-CF Hardware
- Spherical Cube- Multi-CF Hardware
- Spherical Cube Expanded- Multi-CF Hardware
- Spherical Hexagon- Multi-CF Hardware
- Thin Flange- Multi-CF Hardware
- Close Coupler (non-rotatable)- Multi-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 1/19/2024

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