

## Bimetallic CF Components: Titanium to Aluminium Flanges 420-CFTxx-BITAL, DN16CF to DN160CF

### Titanium CF Flanges with Aluminium Tube

The new patented bimetallic flange components give new freedom in chamber design of Aluminium chambers to an attractive price.

If **zero magnetism** is required, Titanium flanges fitted with Aluminium tubes or Aluminium blank-offs are the best choice for chamber manufacturing.

**Long tubes**, fitted to the flanges, reduce the amount of aluminium welds, required for chamber manufacturing.

**Rotatable flanges** which can be fixed with a set screw give maximum flexibility. In addition, the rotary outer parts can be exchanged to other shapes, so the use of chain clamps is possible as well. The reduced closing time is often very important in radiation environments!



The best solution for UHV Aluminium components is, to have the flange made out of a hard material, which is directly jointed to Aluminium. Allectra offers components, where the flange is made out of **Titanium Grade 5**, which is directly jointed to Aluminium. Both materials are an improvement to Stainless Steel.

Outgassing is lower, hardness of Titanium is significantly higher and the materials are non-magnetic.

We deliver these items with a rotatable "Allectra" style flange, which combines through holes and tapped holes. The bolt ring can be fixed with a set screw for easy installation. This design give the user all flange types in one: fixed, rotatable, fixed tapped and rotatable tapped!

Instead of a CF outer ring, a conical ring can be used as well, which allows the use of fast closing chain clamps! For DN16 and DN40CF, split bolt rings can be used as well. During the welding process, the ring does not need to be mounted already, which makes manufacturing more simple.

The Titanium Flange is fitted with a long Aluminium tube which allows direct assembly of the flange to an Aluminium chamber body without an extra weld for extension of the tube.

- ▶ Typical tensile strength 1000N/mm<sup>2</sup> (= 2.5x value of Stainless Steel 316L)
- ▶ Typical tensile yield point 910N/mm<sup>2</sup> (= 1.5x value of Stainless Steel)
- ▶ Hardness ~ 350 HV (= 1.7x value of Stainless Steel)
- ▶ Weight 4,45g/cm<sup>3</sup> (= 0.55x value of Stainless Steel)
- ▶ Fitted with Aluminium tube
- ▶ Long tube length reduces welds for chamber manufacturing
- ▶ Rotatable "Allectra" flange with through holes and tapped holes
- ▶ Flange ring can be fixed by set-screw
- ▶ Low outgassing materials
- ▶ Zero magnetism
- ▶ All CF seals can be used, including Nickel seals





## Technical Data and Dimensions

Material Flange	Titanium Grade 5 = Ti6Al4V, Ti-6Al-4V																												
Material Outer ring	Stainless Steel (rotatable outer flange with set screw) „Allectra“ Flange design with through holes and tapped holes																												
Material Tube	Aluminium AlMgSi, 6060-T6 R <sub>m</sub> =215-260 N/mm <sup>2</sup> 75HB																												
Temperature range	-200 ... +200°C																												
Vacuum range	UHV, XHV																												
Weldability	TIG: 2, MIG: 2																												
Sealing materials	Copper hard/ annealed, Nickel, Aluminium, (NBR)																												
<b>Flange and tube sizes</b>	<table border="1"> <thead> <tr> <th>Flange</th> <th>ID</th> <th>OD</th> <th>Total Length</th> </tr> </thead> <tbody> <tr> <td>DN16CF</td> <td>16mm</td> <td>19mm</td> <td>~ 70mm</td> </tr> <tr> <td>DN40CF</td> <td>38mm</td> <td>42mm</td> <td>~ 75mm</td> </tr> <tr> <td>DN63CF</td> <td>65mm</td> <td>71,5mm</td> <td>~ 105mm</td> </tr> <tr> <td>DN100CF</td> <td>100mm</td> <td>107mm</td> <td>~ 135mm</td> </tr> <tr> <td>DN160CF</td> <td>152mm</td> <td>159mm</td> <td>~ 167mm</td> </tr> <tr> <td colspan="4" style="text-align: center;">(DN160CF planned)</td> </tr> </tbody> </table>	Flange	ID	OD	Total Length	DN16CF	16mm	19mm	~ 70mm	DN40CF	38mm	42mm	~ 75mm	DN63CF	65mm	71,5mm	~ 105mm	DN100CF	100mm	107mm	~ 135mm	DN160CF	152mm	159mm	~ 167mm	(DN160CF planned)			
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Compatibility	Fully compatible to CF flanges according ISO/TS-3669-2																												
Options for Outer ring	Other materials (Aluminium, Bronze, Titanium, etc.) Other shapes including conical rings for chain clamps – Cefix style																												

Recommended manufacturing process:

- Tube to be machined to required length and shape
- Prior to welding, the weld area should be cleaned, grinding is recommended
- If WIG welding is used, the typical filler materials are Al 4943, 4047, 4643, 5356 and other alloys of the 4000 or 5000 group.