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RFQ Pick-ups

by **Peter Savage**

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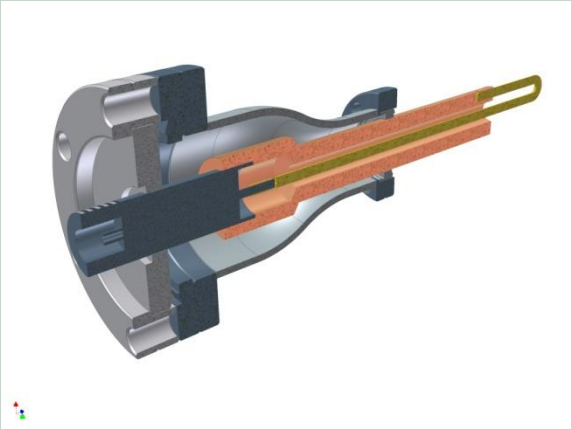
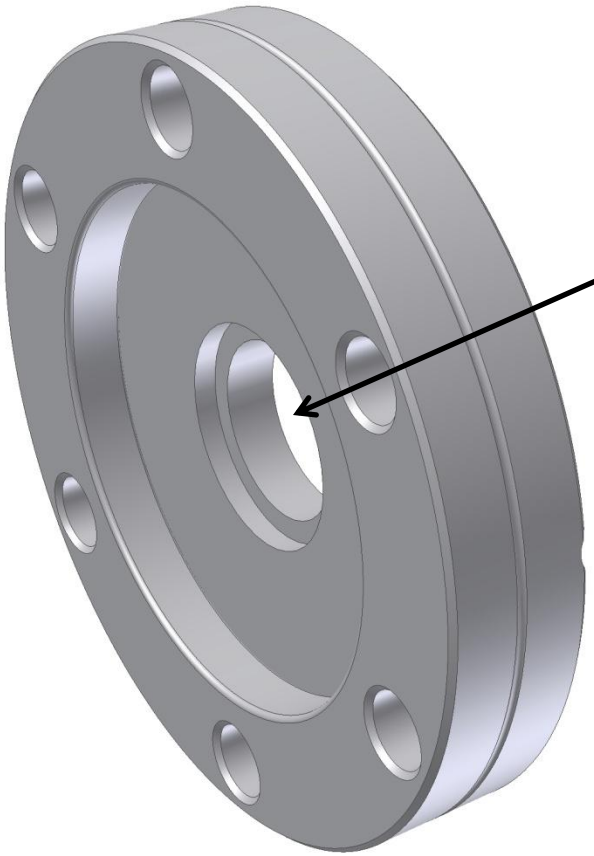
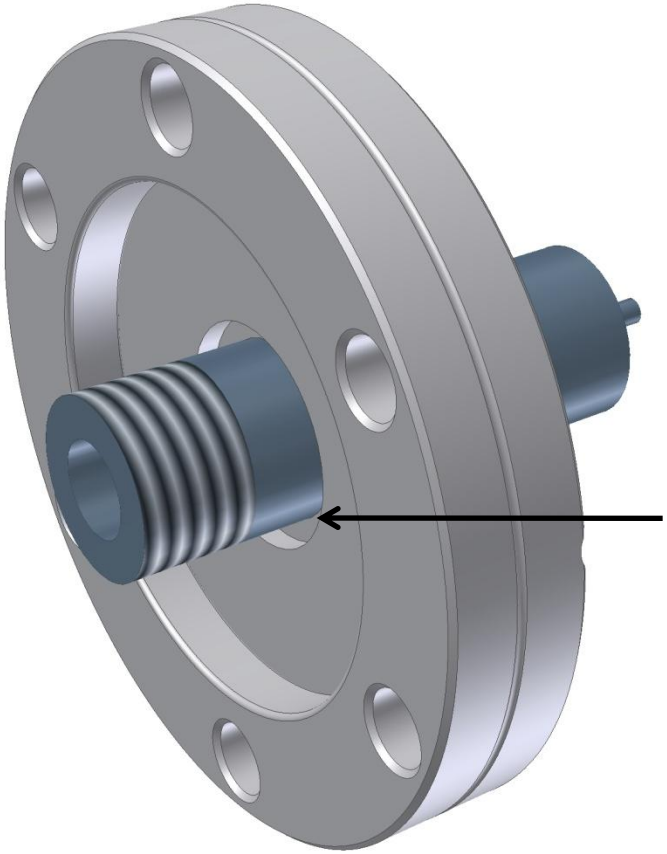




Start with an off-the-shelf CF40 rotatable blank flange.

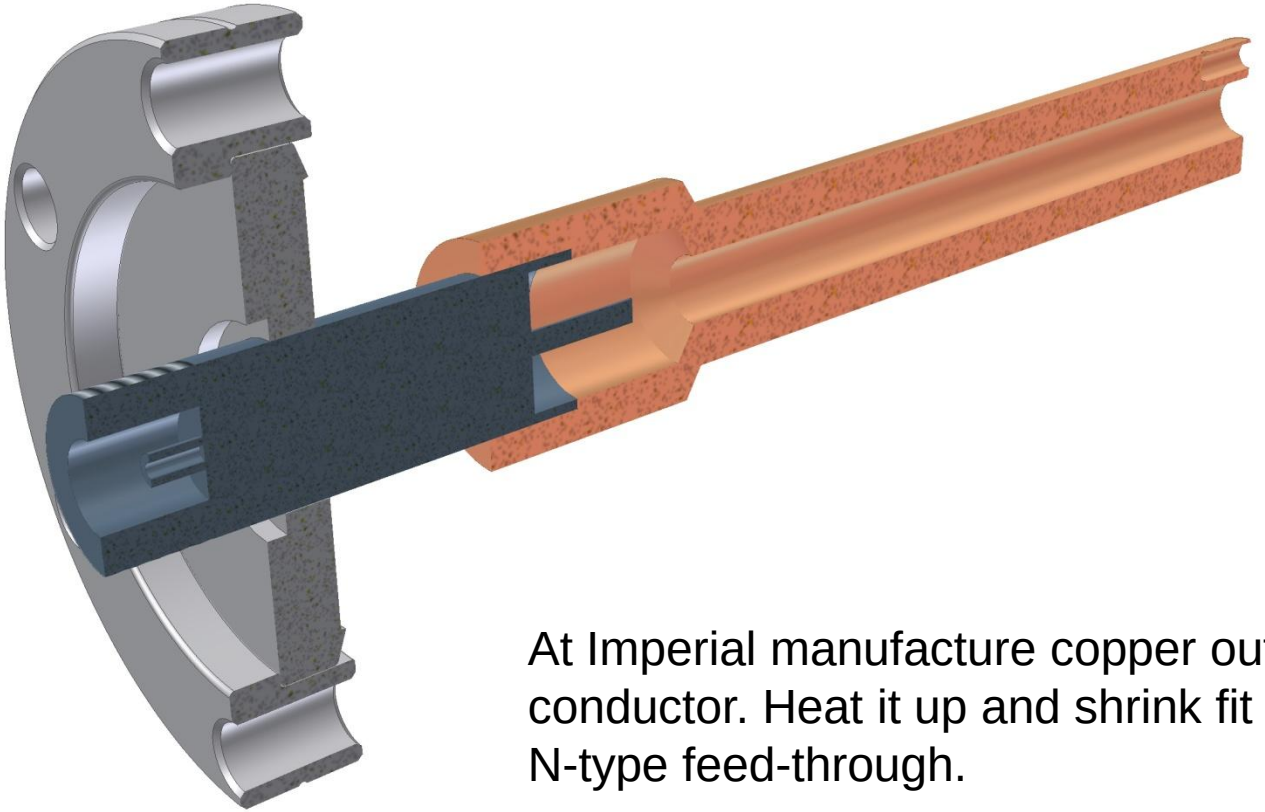
Then bore out the centre (rotating) piece.



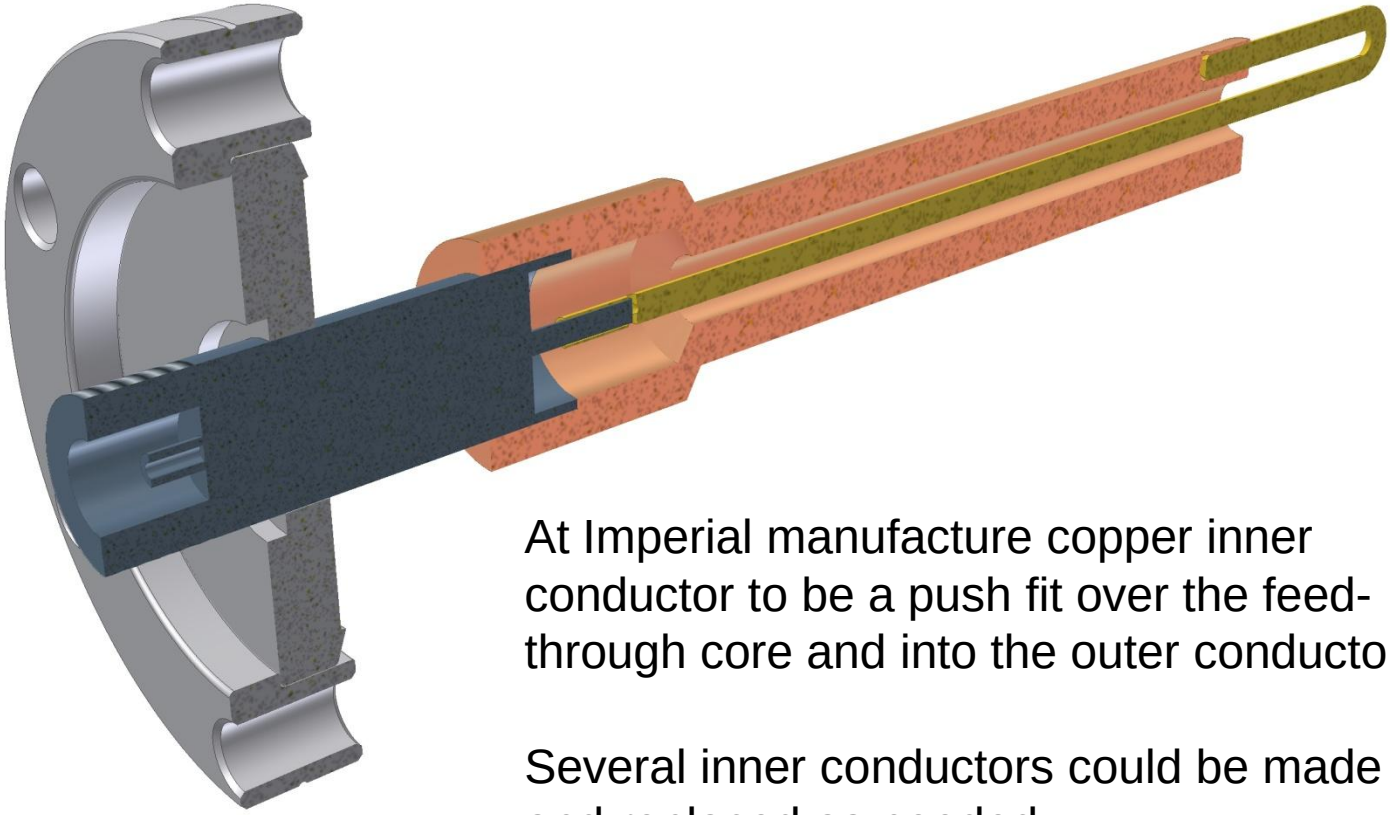
Buy an off the shelf weldable N-type single sided vacuum feed-through.

Heat up the flange centre piece and shrink fit the feed-through into the flange centre piece.

Extra option: fill the recess with adhesive if shrink fit is not vacuum tight.



At Imperial manufacture copper outer conductor. Heat it up and shrink fit it onto N-type feed-through.

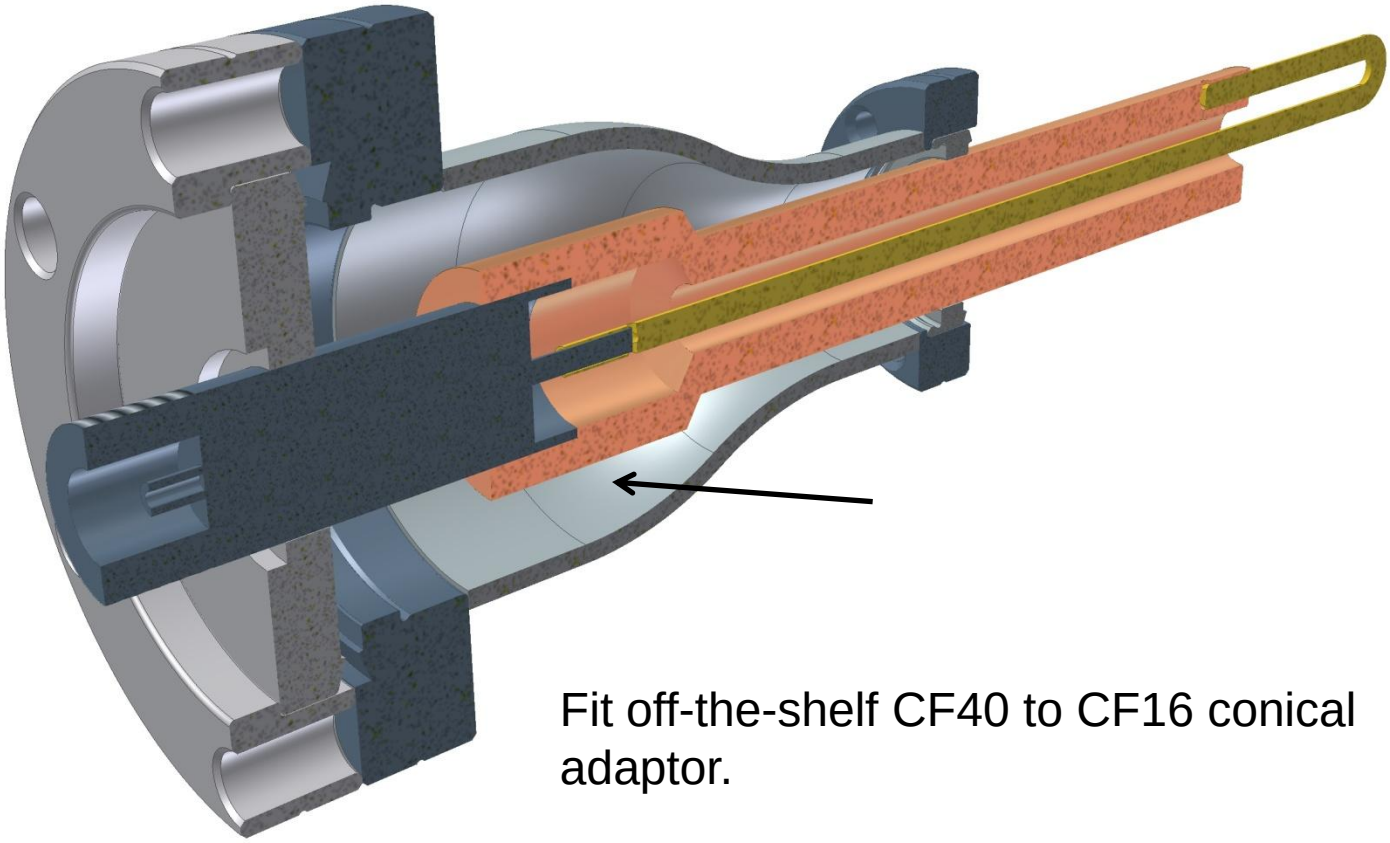


At Imperial manufacture copper inner conductor to be a push fit over the feed-through core and into the outer conductor.

Several inner conductors could be made and replaced as needed.

Blind holes will be relieved for vacuum.

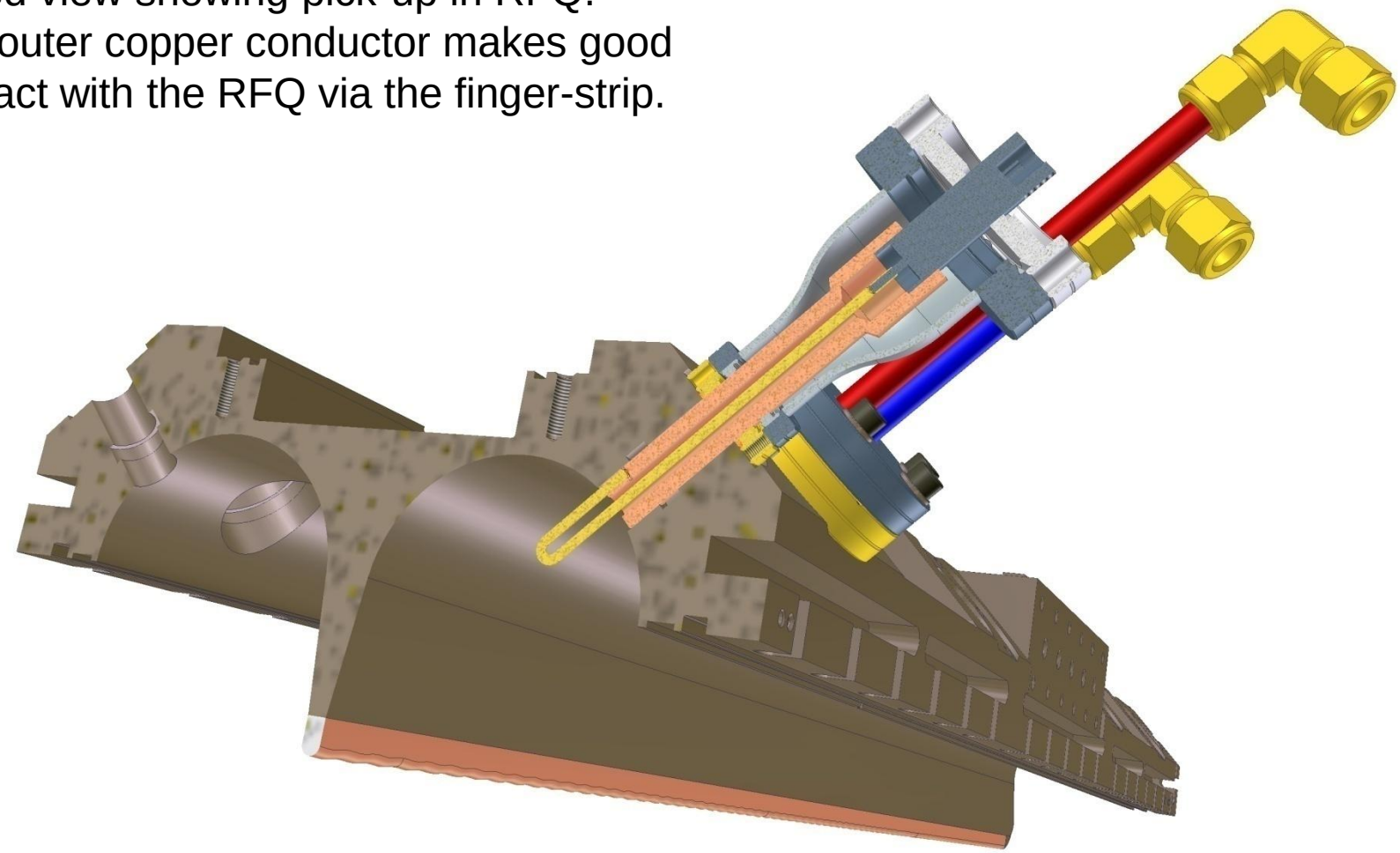
The inner diameter of the outer conductor D is 6.9mm and the outer diameter of the inner conductor d is 3.0mm giving a ratio D/d = 2.3. This should help to maintain the characteristic impedance Z_c of 50 ohms where $(Z_c) = 60 \ln (D/d)$

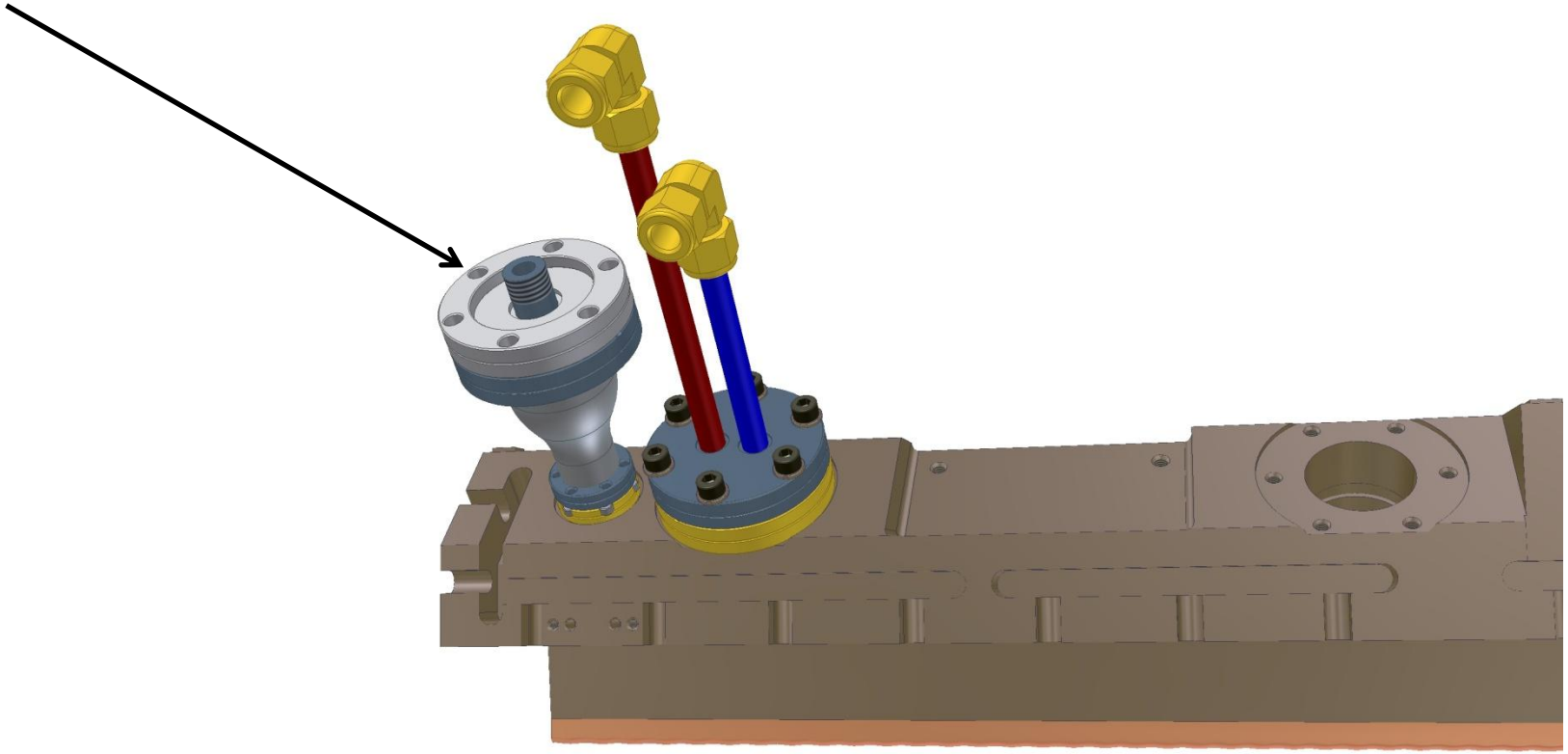


Fit off-the-shelf CF40 to CF16 conical adaptor.

Might need to relieve vacuum in region arrowed.

Sliced view showing pick-up in RFQ.
The outer copper conductor makes good contact with the RFQ via the finger-strip.





The loop can be rotated by undoing the 6 x M6 screws (not shown) arrowed and rotating the flange centre piece.

Ready for RF test