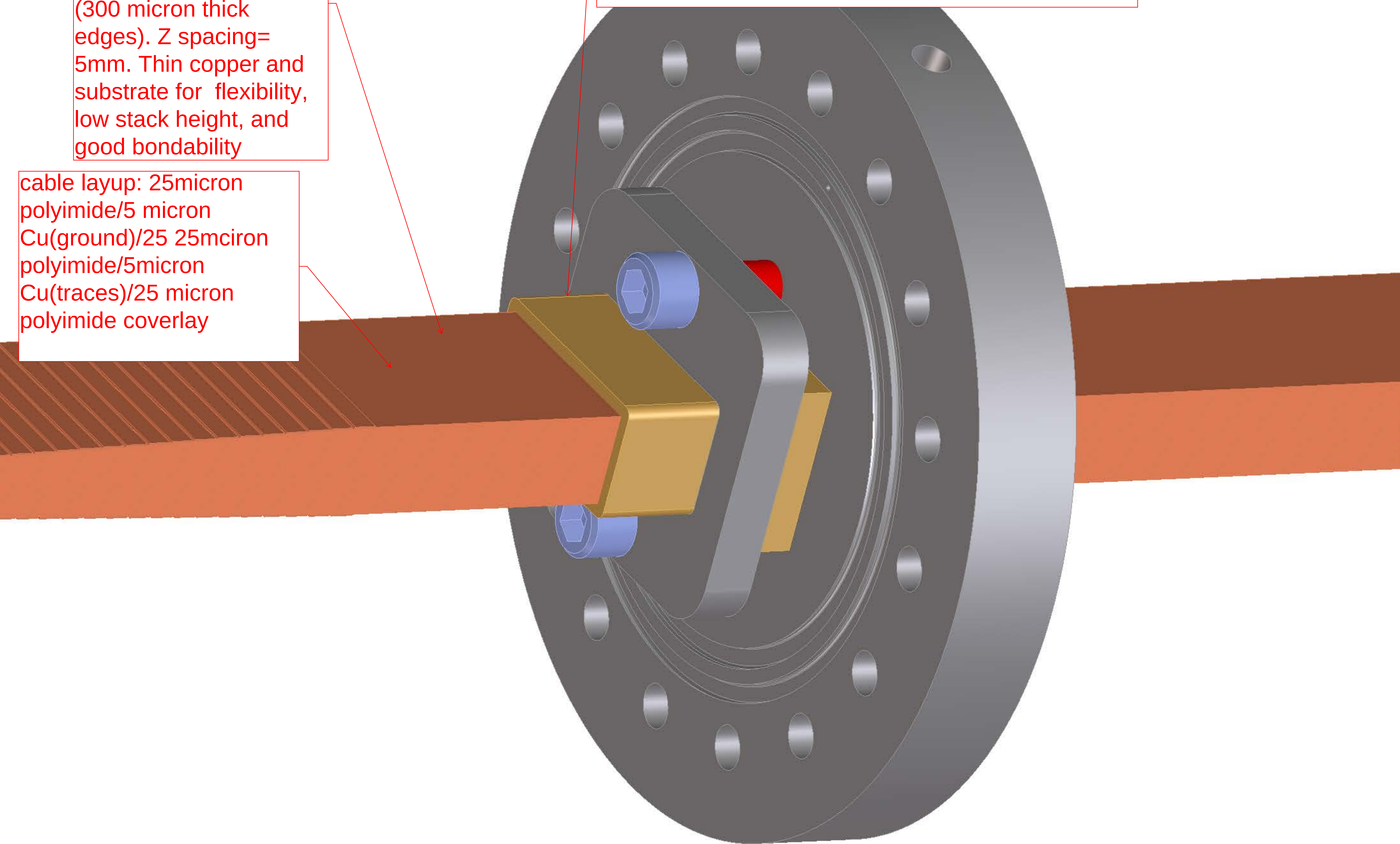


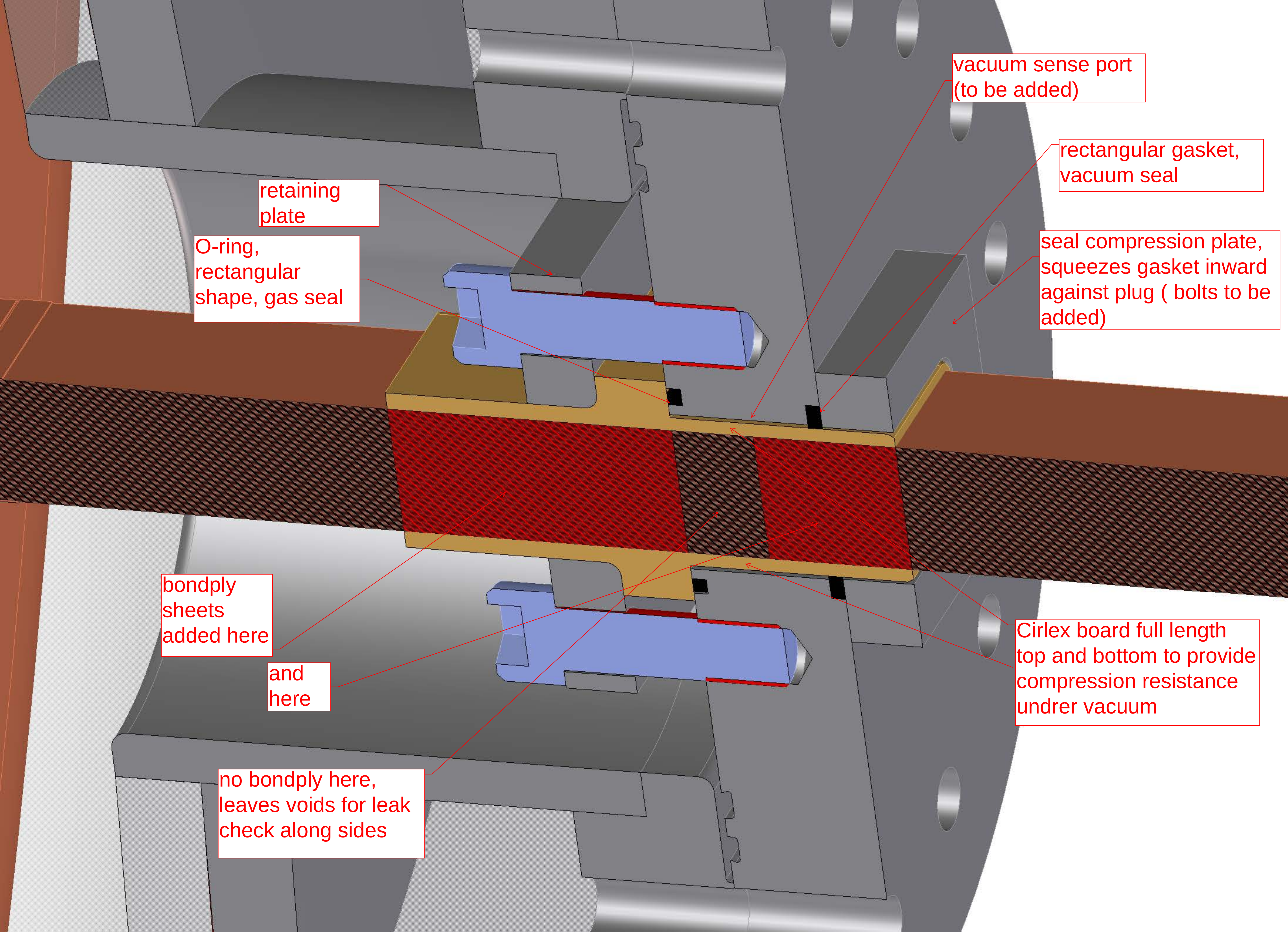
Concept for all-polyimide (CIRLEX) feedthrough, D. Shuman 6/12/12

56 cables, each 85mm wide x 150 micron thick (300 micron thick edges). Z spacing= 5mm. Thin copper and substrate for flexibility, low stack height, and good bondability

cable layup: 25micron polyimide/5 micron Cu(ground)/25 25micron polyimide/5micron Cu(traces)/25 micron polyimide coverlay

Cirlex plate bonded top and bottom to cable stack. Extra cable substrate width on sides. then, all press bonded together and machined





vacuum sense port
(to be added)

rectangular gasket,
vacuum seal

seal compression plate,
squeezes gasket inward
against plug (bolts to be
added)

retaining
plate

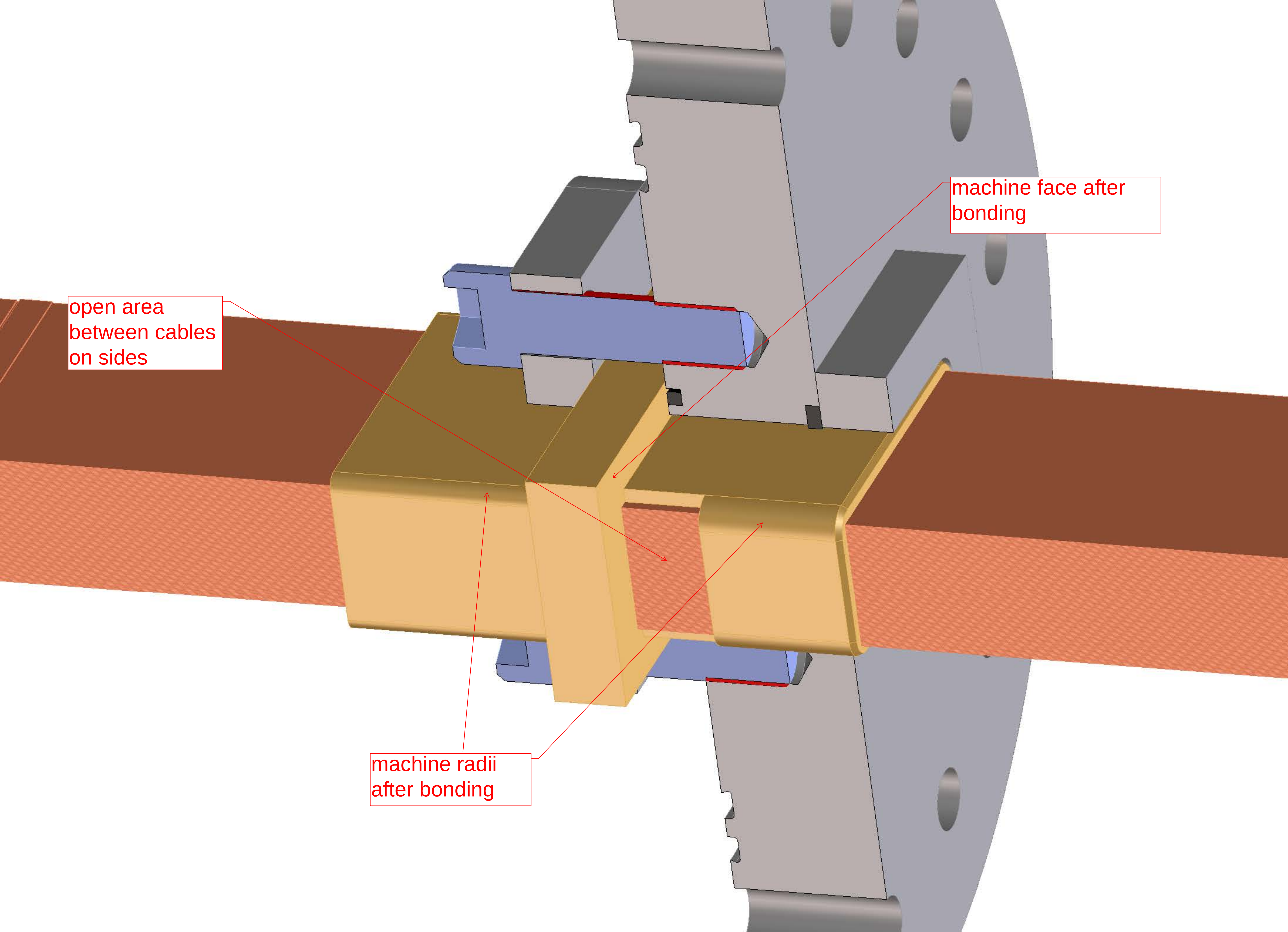
O-ring,
rectangular
shape, gas seal

bondply
sheets
added here

and
here

no bondply here,
leaves voids for leak
check along sides

Cirlex board full length
top and bottom to provide
compression resistance
undrer vacuum



open area
between cables
on sides

machine face after
bonding

machine radii
after bonding

All polyimide plug should be stronger and more leakproof than an epoxy bonded construction. material has 50 kpsi (350 MPa tensile strength), better than any epoxy. Delamination should not be a concern. Tapered plug concept of previous concept should not be necessary

