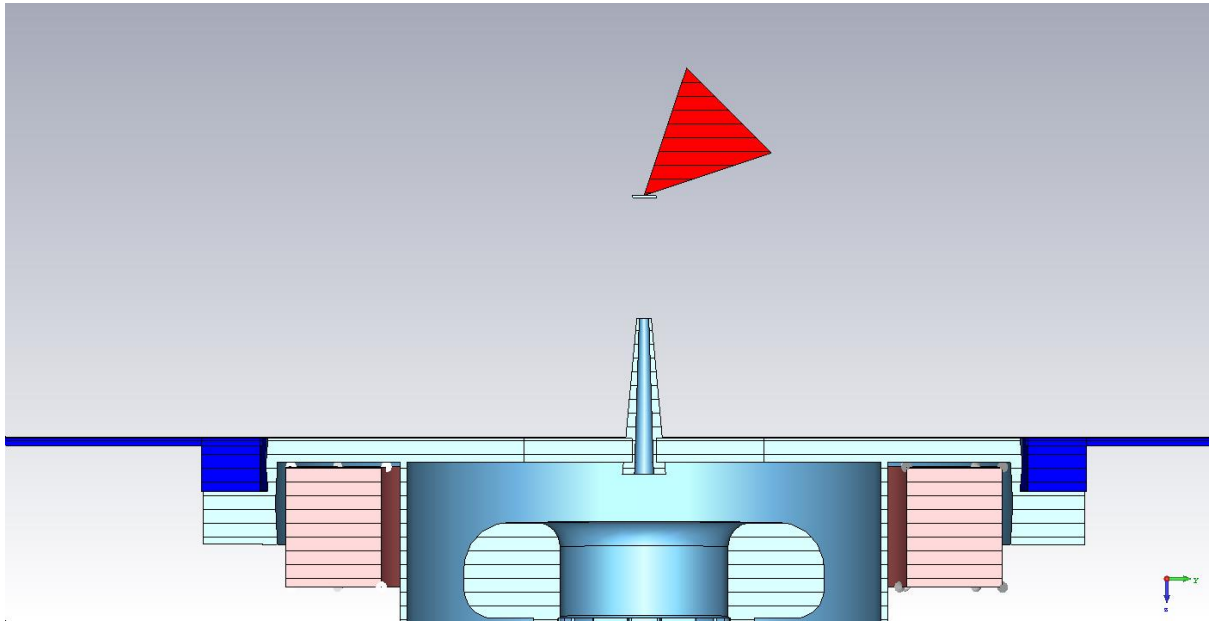


Layout – Laser target/Gabor lens interface



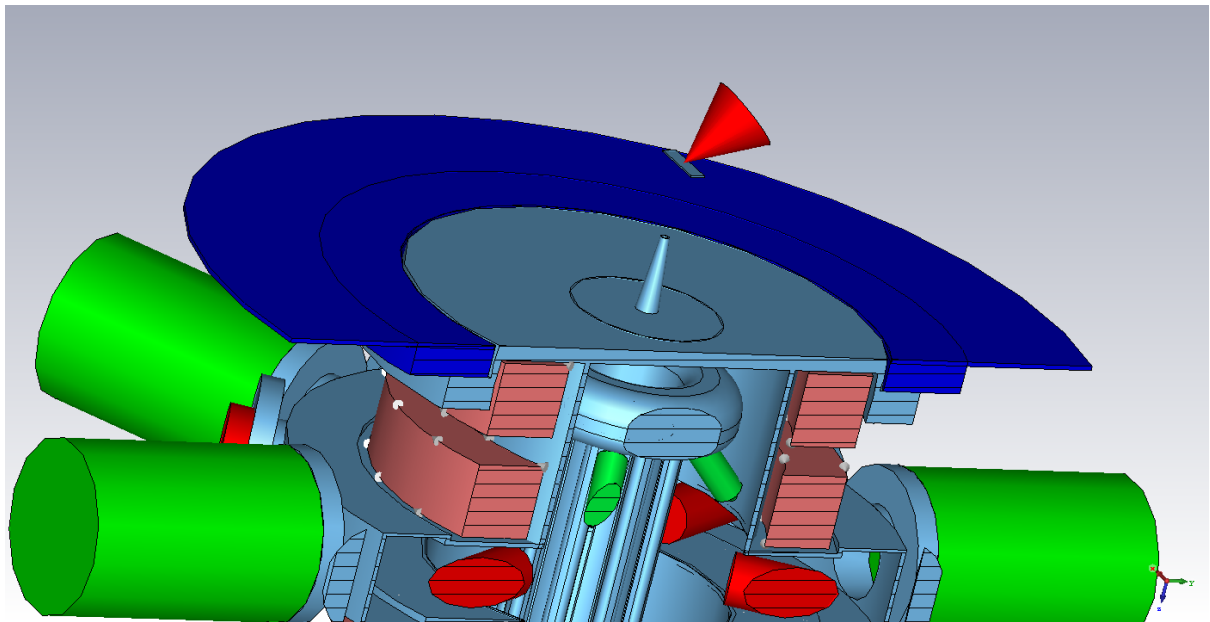
Red triangle is laser beam (because James Bond, Goldfinger) point lands on light blue target
Blue is laser vacuum vessel with 2 ISO320 flanges shown.

Distance between laser target and inside plane of vacuum vessel is 100mm.

Pink are gabor lens magnet coils

Green is high voltage isolators to support gabor lens anode.

Light Blue is Gabor Lens vacuum vessel and components with NEG pumps in red and turbo pumps in green



Notes:

- Gabor lens differential pump port is re-entrant to Laser vacuum volume
 - Point of closest approach to target is 50mm.
- Gabor lens proper starts 110mm from target.
- Gabor lens electron cloud full density ?? Question for Juergen.

Pressure drop across an orifice in vacuum

Short tube – Dushman tables

Dushman tables. 0.2cm radius round tube with length to radius ratio $(l/a)=25$ $C_t=0.178$ l/s

$$Q_1=p_1S_1=p_2S_2= C_t (p_1-p_2)=Q_2 \quad p_2=p_1*(C_t / (S_2+ C_t)) \quad C_t = 0.018 \quad p_2=p_1*6e-4$$

Pressure on low pressure side will be about 3 orders of magnitude lower than high side.

- Hollow anode – field relieving electrodes facing cathodes.
- Sectional ‘cylinder’ to allow vacuum pumping. Field relieving to anode ‘bars’ required to manage radial E field enhancement.
- Possible electron injection between ‘bars’
- Not suitable for electron density measurement by RF (only possible for e density at $10^{17}/\text{m}^3$)

