

TPC Concepts

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Updated 12/6/2018 (shortly after meeting)

Possible mods-

Exchange foam pad on top of TPC with stainless “pillow”

Pump out box-like structure which can be evacuated at the lid

- Alternate method - use foam on outside of lid which is recessed

(if the lid is recessed, there is a length of stainless which is insulated from the room air as it transitions from cold to warm)

In both of these scenarios, there is no foam to outgas to the process fluid

Shift seals on box to only seal in one direction at a time

If a fiberglass box is made with some openings, hatches can seal these areas

Resistive field cage-

If the box vessel is used, the field cage must pass through smaller openings

Create a field cage which folds up and then expands when it passes through the hatch

Rigid / flex circuit (use G-10 stiffeners)

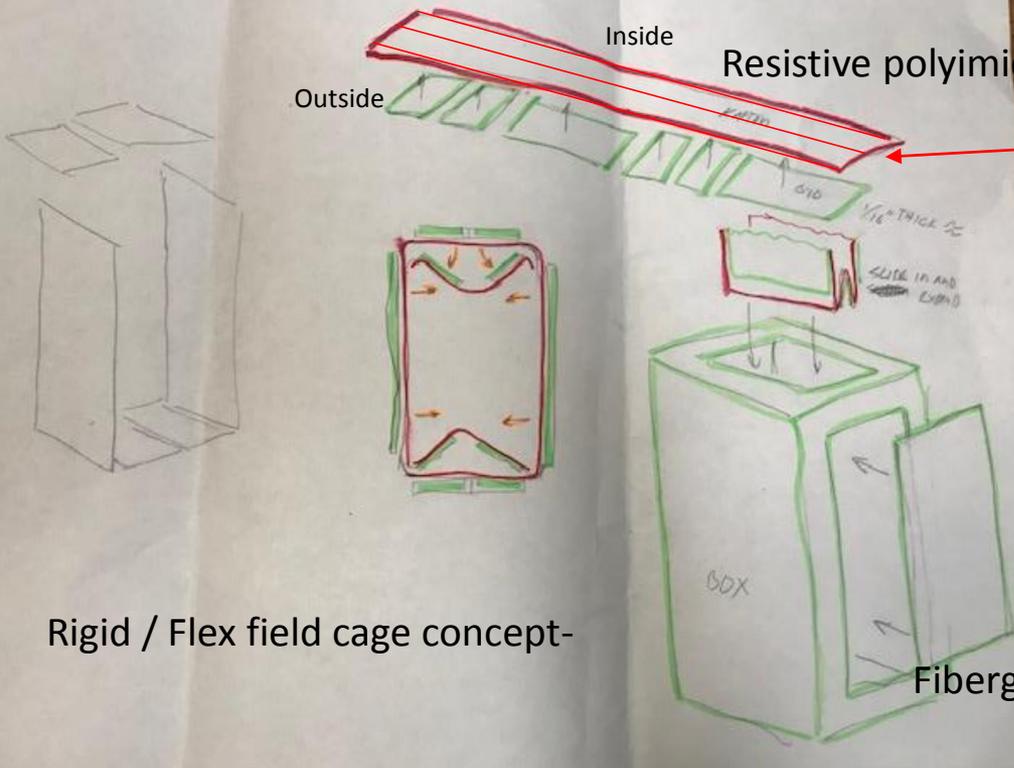
Could pass through front or top

Hold in place either with cathode or clips in low potential areas

Make film more durable by bonding it to another layer of insulating Kapton

(with three conductive stripes to define the field at the ends the center)

Leave a radius in each corner to permit thermal contraction



Resistive polyimide bonded to G-10 stiffeners

Resistive polyimide on inside

May be laminated to a layer of insulating Kapton with 3 conductive stripes (anode / cathode / anode) helps assure voltage uniformity

G-10 stiffeners on outside to maintain shape

Cathode can pop into place
G-10 is pushed against the inside of the box either by cathode or locking clips near anodes

Fold pattern can be tuned to insert from top or side

Leave radius in corners for contraction

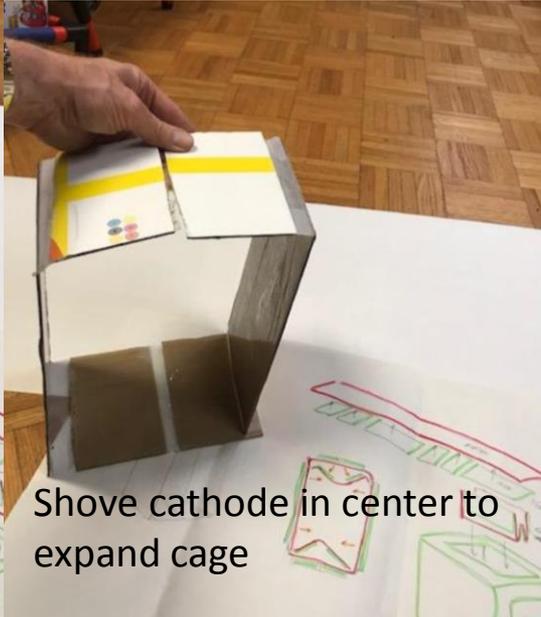
Rigid / Flex field cage concept-

Fiberglass box with hatches

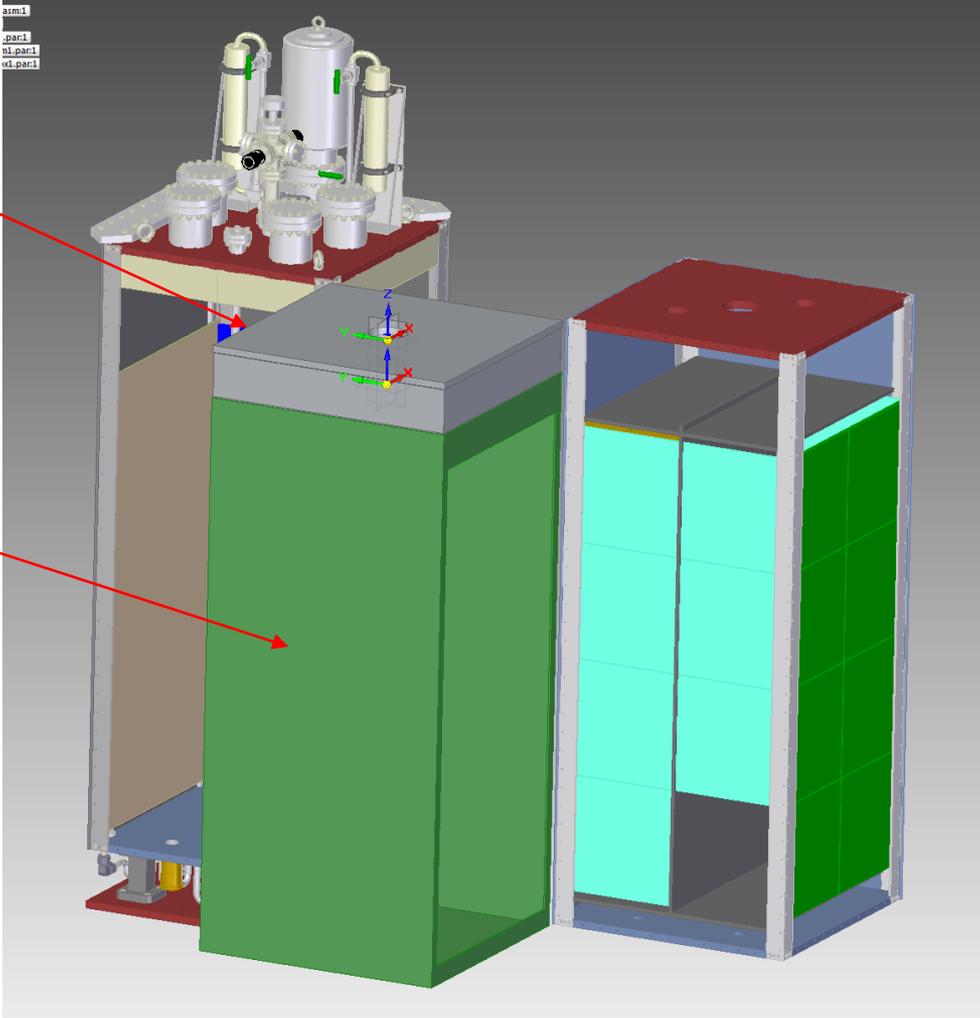
Leave space between stiffeners for corner radii (for thermal contraction)



Fold up to fit through hatch



Shove cathode in center to expand cage

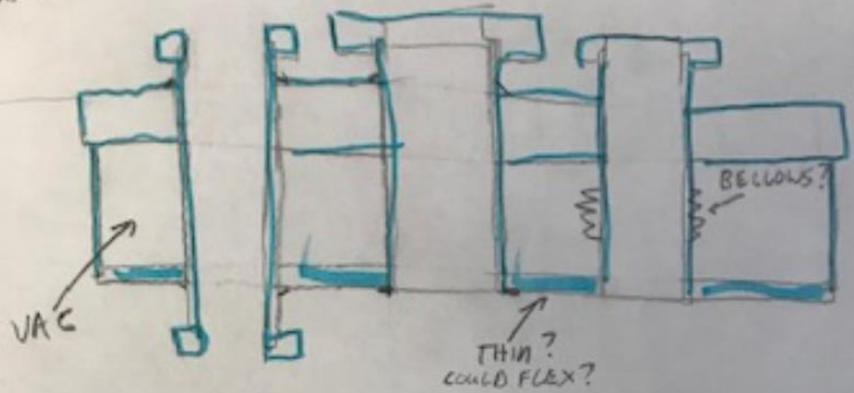


Stainless insulating "pillow"
(services pass through)
Contraction taken either with
bellows or a flexible inner wall

G-10 box ready for hatches

INSULATING LIDS

ROOM TEMP
TOP SURFACE
↓



FOR THERMAL
CONTRACTION,
EITHER MAKE
LOWER WALL
THIN OR USE
BELLOWS

ROOM TEMP
TOP SURFACE
↓

