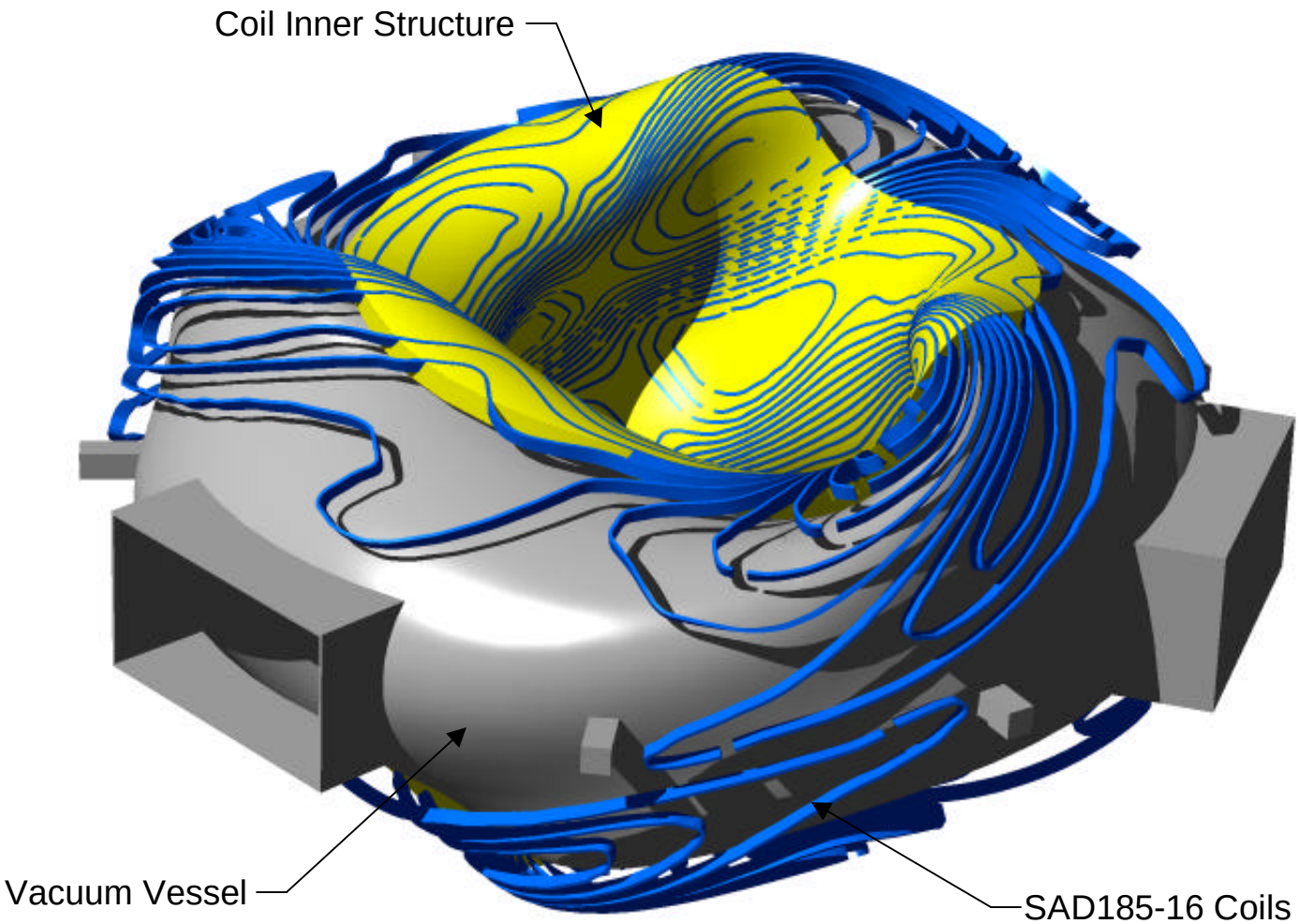
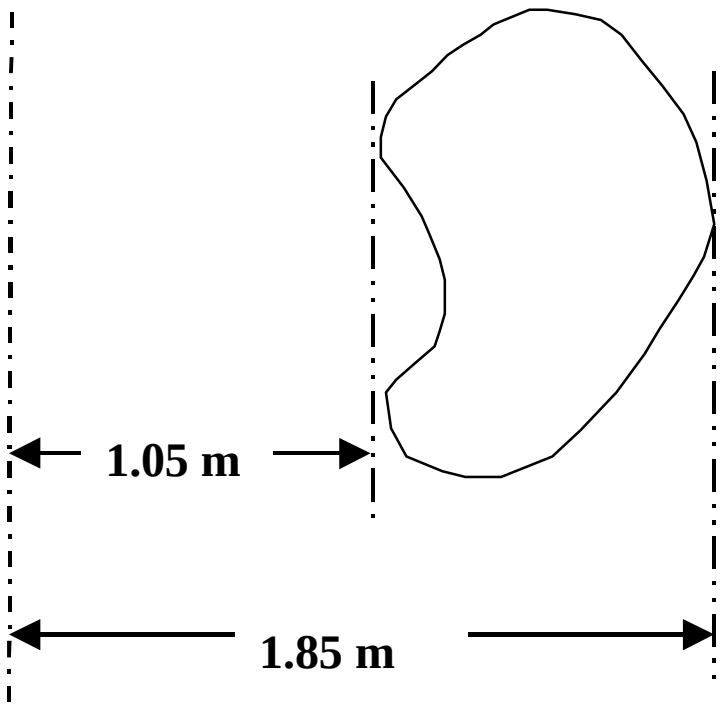

Coil Inner Structure
Vacuum Vessel
SAD185-16 Coils

Winding pack geometry constraints

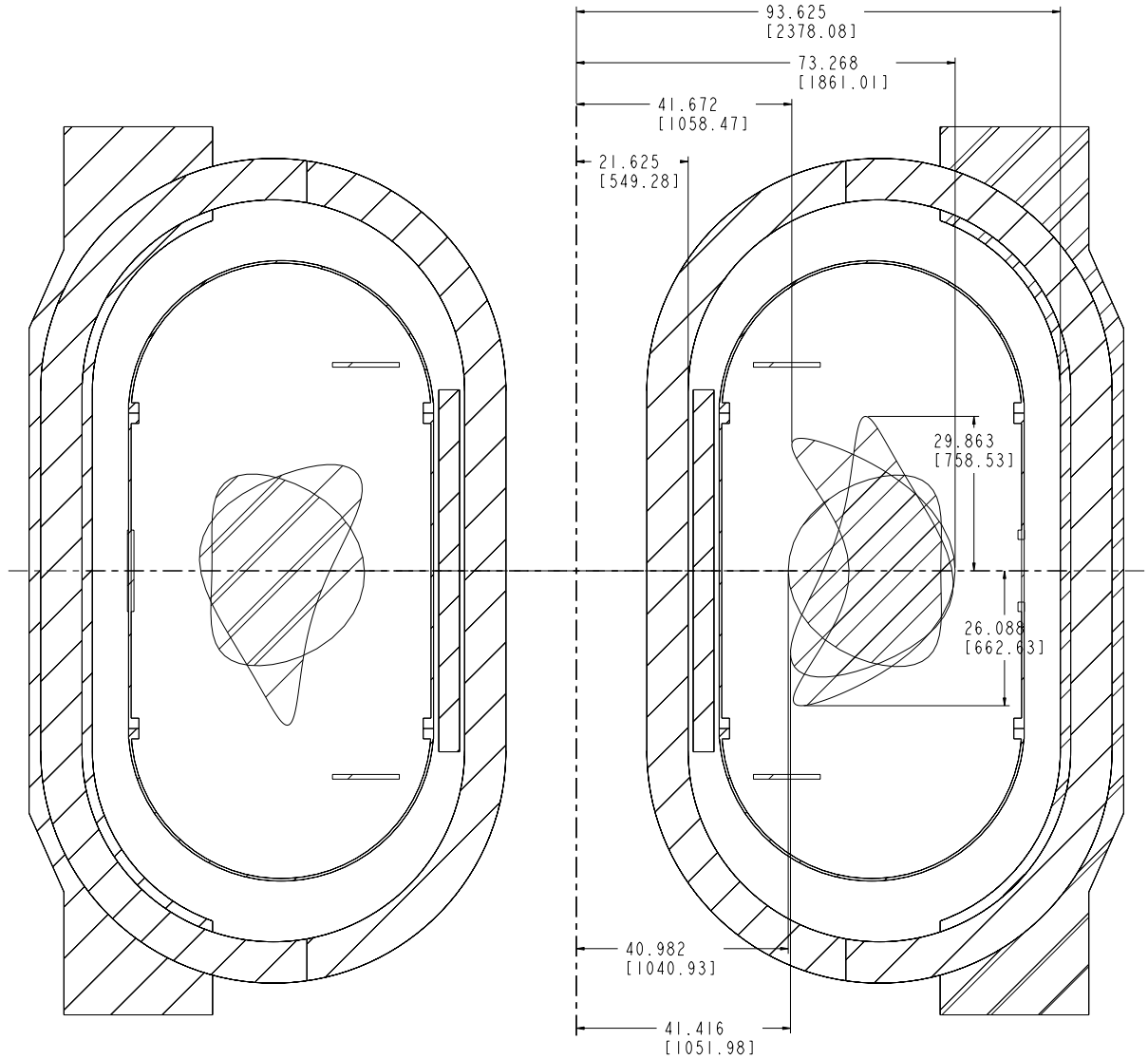
- Center of winding is at least 18 cm from plasma edge
- Plasma is constrained by two cylinders,



- Depth of winding is constrained by machining and physical constraints to about 70 mm

PRELIMINARY

P3C10A Plasma



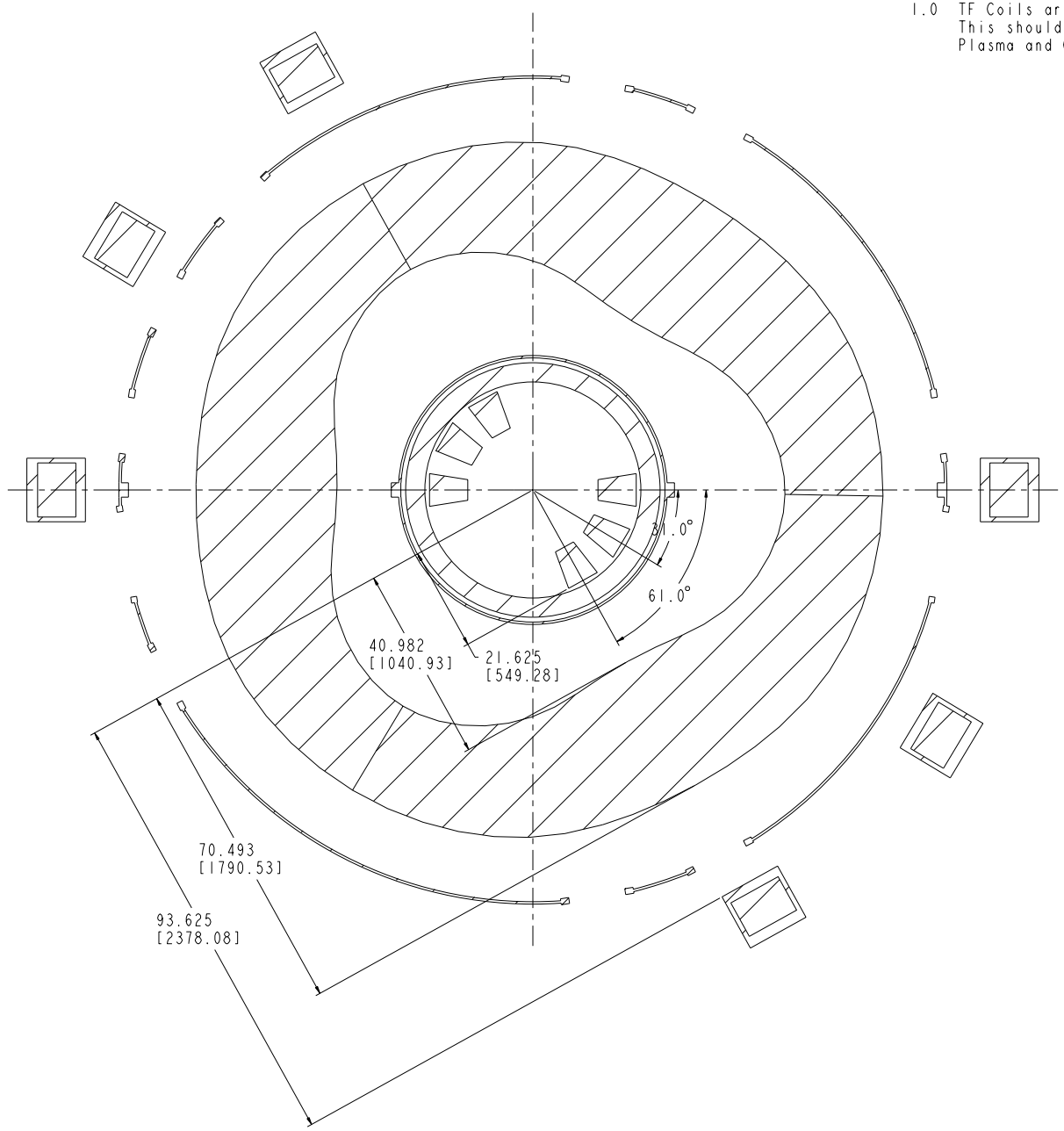
PRELIMINARY

THU, APRIL 8, 1999

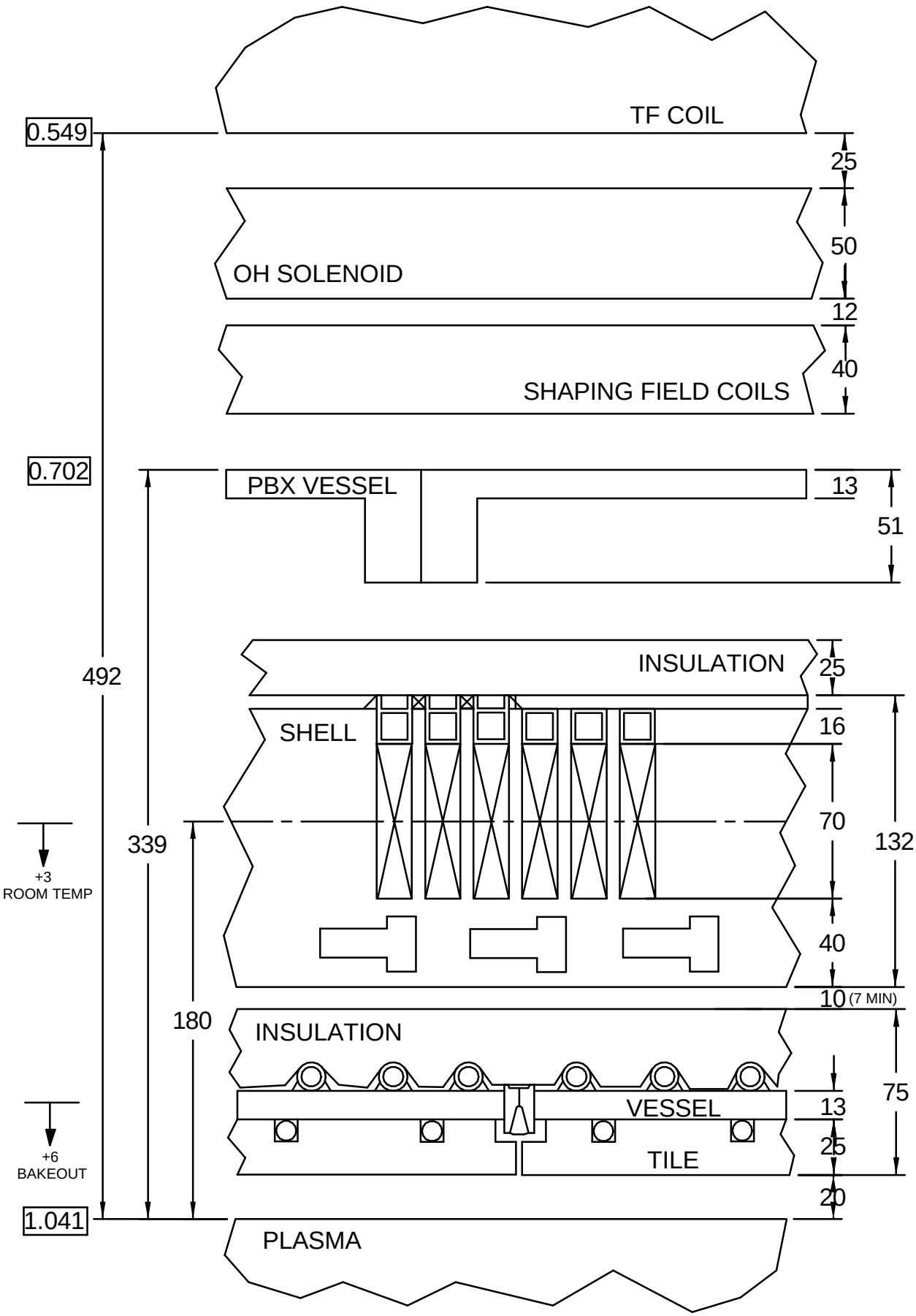
PRELIMINARY

P3C10A PLASMA

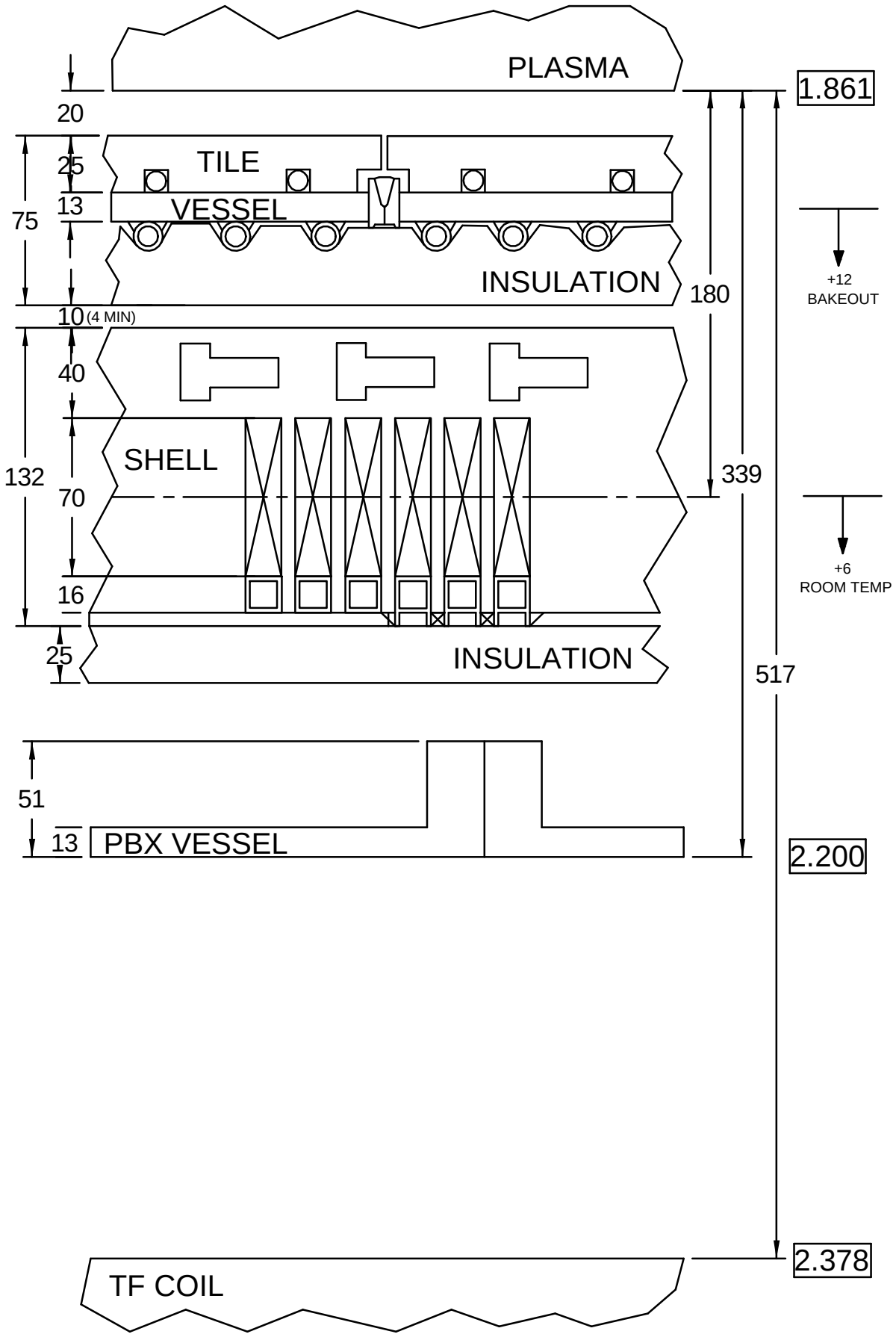
Note:
1.0 TF Coils are located at the angles shown. This should be minimum clearance between Plasma and Coil.]]



PRELIMINARY
THU, APRIL 8, 1999



INBOARD SECTION AT OP. TEMP

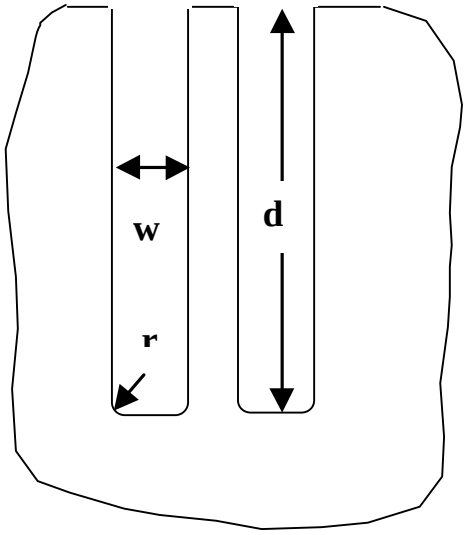


OUTBOARD SECTION AT OP. TEMP

Winding pack geometry constraints

- NAB and Al are candidate materials, stainless steel is not

- Machining limits for groove:



Width (w)
absolute = 10 mm
preferred = >13 mm

Depth (d)
absolute = 85 mm
preferred = <75 mm

Corner radius
absolute = 1.5 mm
preferred = full radius

- Machining cost is function of material and

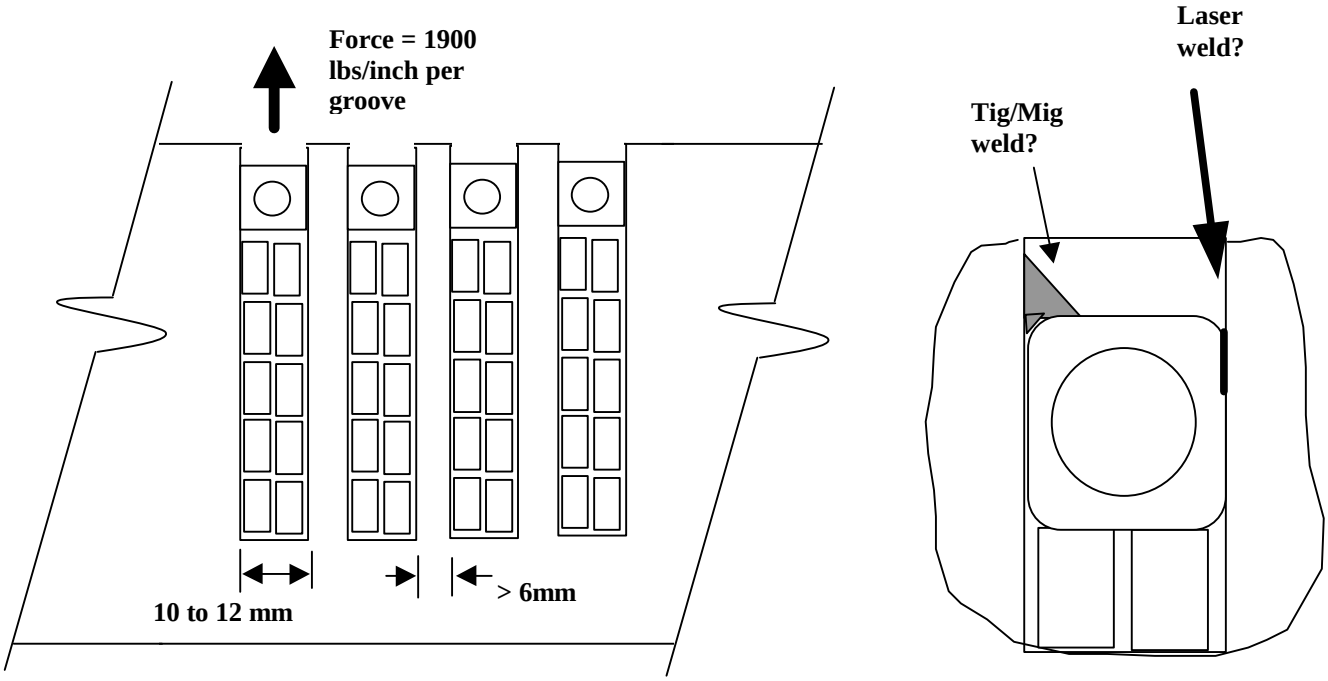
Length of groove (not width)
Number of passes (~ depth / width)

$ = c* length * depth / width

⇒ $ for 32 coils per period = 4 x $ for 16 coils

Winding pack closure concept

- Problem:

  Winding pack must be restrained against EM forces
  Winding / shell structure pack must be cooled

- Possible solution: Weld cooling line into groove