

# Mounting of the Cerenkov Muon Veto in the water tank

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GERDA Collaboration

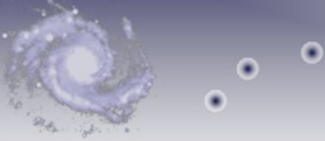
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Großgeräte der physikalischen  
Grundlagenforschung

Kepler Center for Astro and Particle Physics



# task and prerequisites

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**task:** mount Cerenkov Muon Veto

66 PMT capsules in the water tank

6 below cryostat (pillbox)

20 on the floor

40 on the wall of the water tank

VM2000 reflector foil (also wave-length shifter)

pillbox, cryostat, wall, floor

cables & cable tray, LED&fibres+diffuser

**prerequisites:** water tank tested and cleaned

**must:** WT pressure tested, emergency emptying,  
cleaned

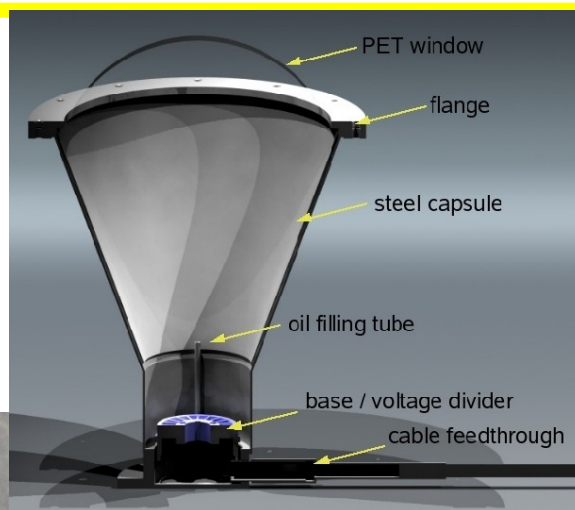
**should ?:** GERDA building, access to chimney

**request:** ventilation/sufficient oxygen in WT

# PMT



socket

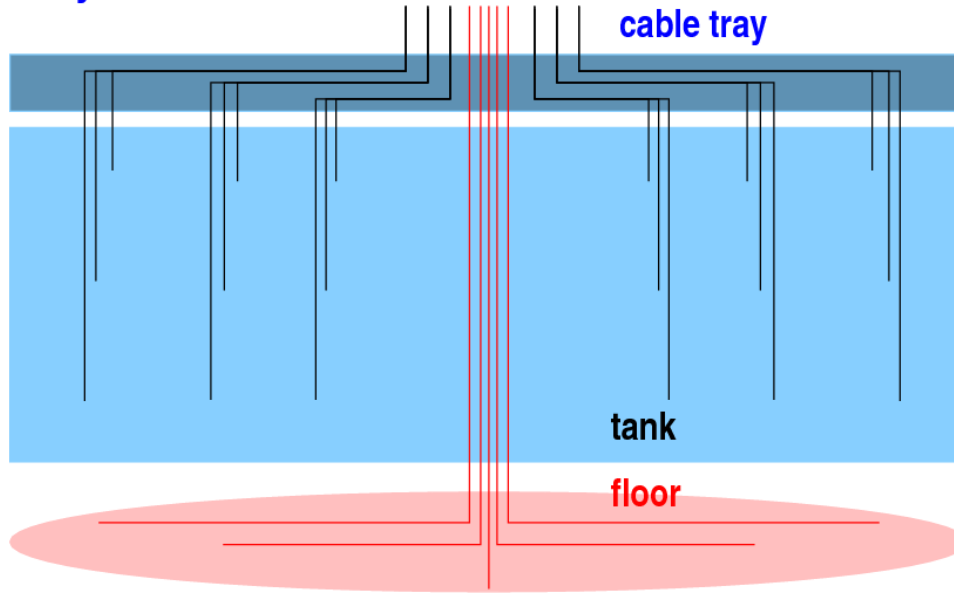


studs in WT

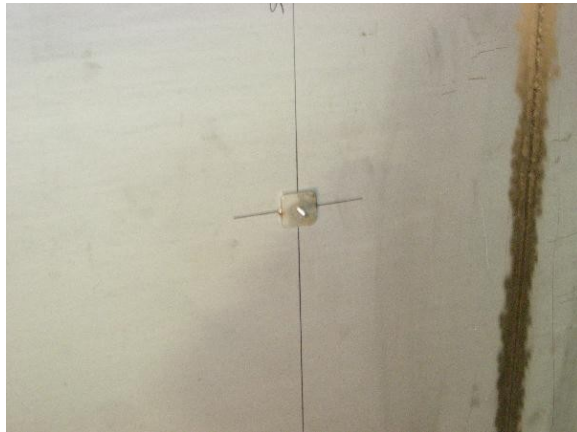


# cables, cable tray

Layout inside water tank



single stud



# VM2000 foil

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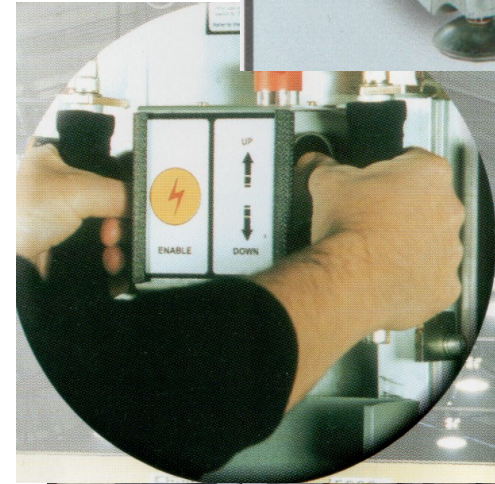
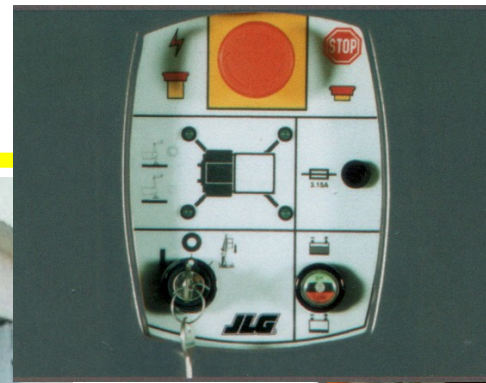


comes in rolls of 1,2m width and 45m length

- ◆ self-adhesive foil:
  - glue does not dissolve
  - holds on SS surface
- ◆ fixed by washers / nuts
  - distances 1,3 – 2 m
- ◆ secured by SS wires
  - running horizontally at 3 heights
- ◆ clamped by the PMT mount and cable holders

# personal lifter

only up & down  
1 person



# specifications



Arbeitsbühnen-Vertriebs-Vermietungs GmbH

74523 Schwäbisch  
Telefon 07 91/9  
<http://www.>



**JLGITALIA**

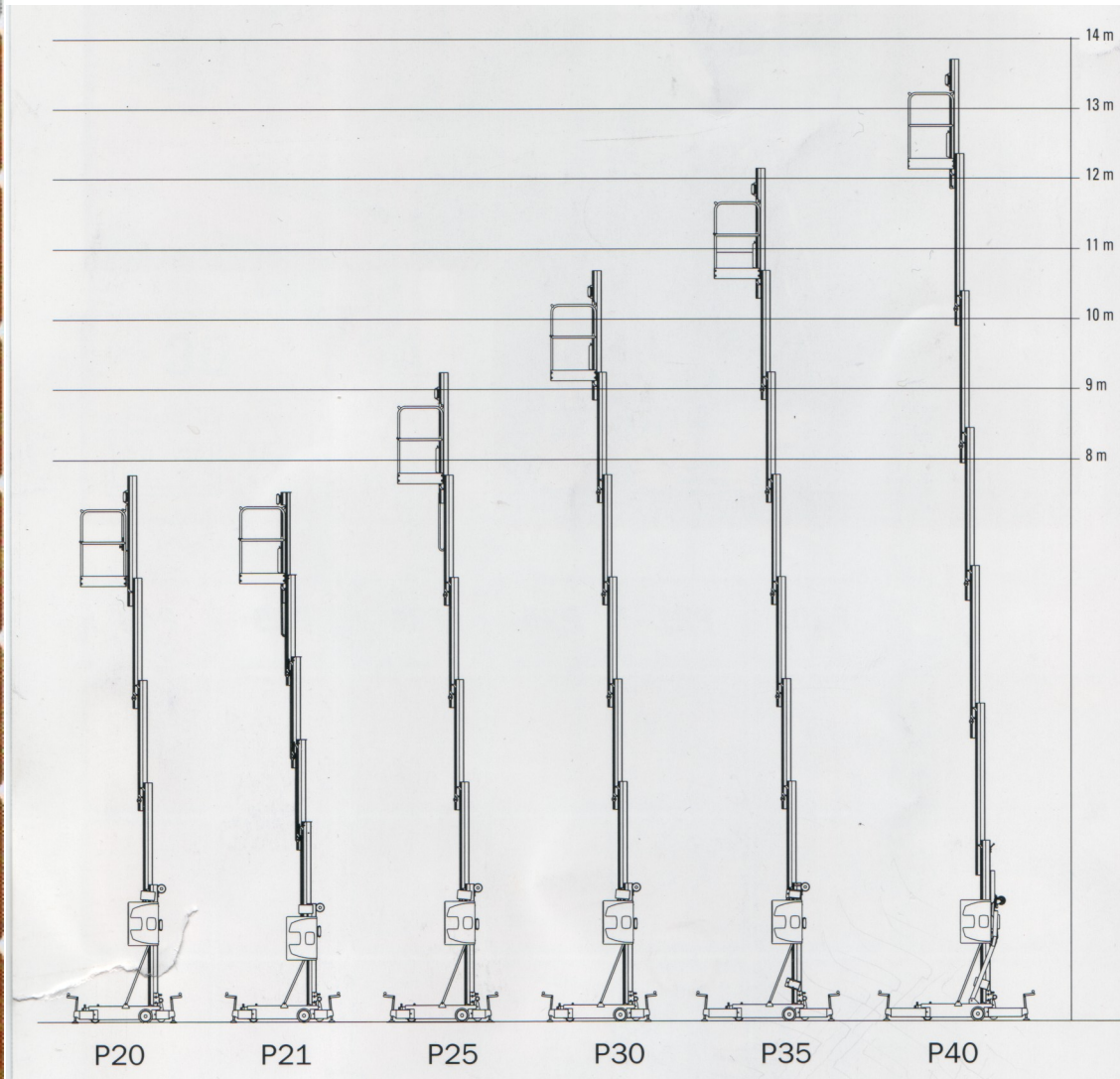
**Tel: +39 02 9359 5210**

**JLG Industries (Italia) s.r.l.,**

**Via Po. 22,**

**20010 Pregnana Milanese -ML-, Italy**

	<b>P25</b>	<b>P30</b>
<ul style="list-style-type: none"> <li>Working height</li> <li>Hauteur travail</li> <li>Arbeitshöhe</li> <li>Altura trabajo</li> <li>Altezza di lavoro</li> </ul>	9,70 m	11,16 m
<ul style="list-style-type: none"> <li>Stowed height</li> <li>Hauteur repliée</li> <li>Bauhöhe</li> <li>Alto de plataforma recogida</li> <li>Altezza piattaforma abbassata</li> </ul>	1,99 m	1,99 m
<ul style="list-style-type: none"> <li>Width</li> <li>Largeur</li> <li>Breite</li> <li>Ancho</li> <li>Larghezza</li> </ul>	0,75 m	0,75 m
<ul style="list-style-type: none"> <li>Length</li> <li>Longueur</li> <li>Gesamtlänge</li> <li>Longitud chassis</li> <li>Lunghezza chassis</li> </ul>	1,24 m	1,31 m
<ul style="list-style-type: none"> <li>Weight</li> <li>Poids</li> <li>Eigengewicht</li> <li>Peso</li> <li>Peso</li> </ul>	AC: 365 kg DC: 380 kg	AC: 405 kg DC: 420 kg
<ul style="list-style-type: none"> <li>Standard platform dimension</li> <li>Dimension panier standard</li> <li>Abmessungen Standard Plattform</li> <li>Dimensiones de la plataforma estandar</li> <li>Dimensioni della piattaforma standard</li> </ul>	0,66 x 0,66 m	0,66 x 0,66 m
<ul style="list-style-type: none"> <li>Work Platform capacity</li> <li>Capacité de la plate-forme standard</li> <li>Plattform Tragfähigkeit</li> <li>Capacidad de carga de la plataforma estandar</li> <li>Portata della piattaforma standard</li> </ul>	160 kg	160 kg



# unload personal lifter



same procedure for installation





# tests @ Tübingen



- a) unloading test with dummy manhole
- b) mounting of foil



# tests @ Tübingen



c) can be driven by a professor

# unloading and entering the WT

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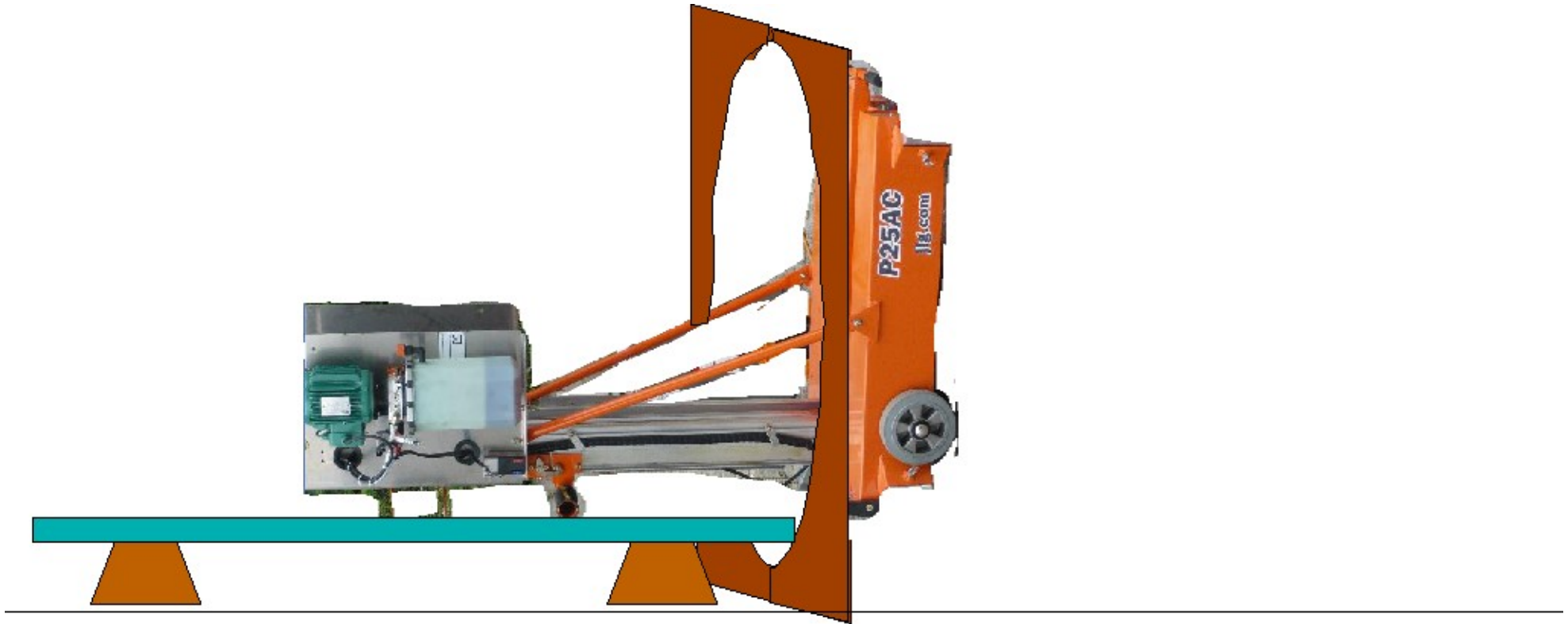
# unloading and entering the WT

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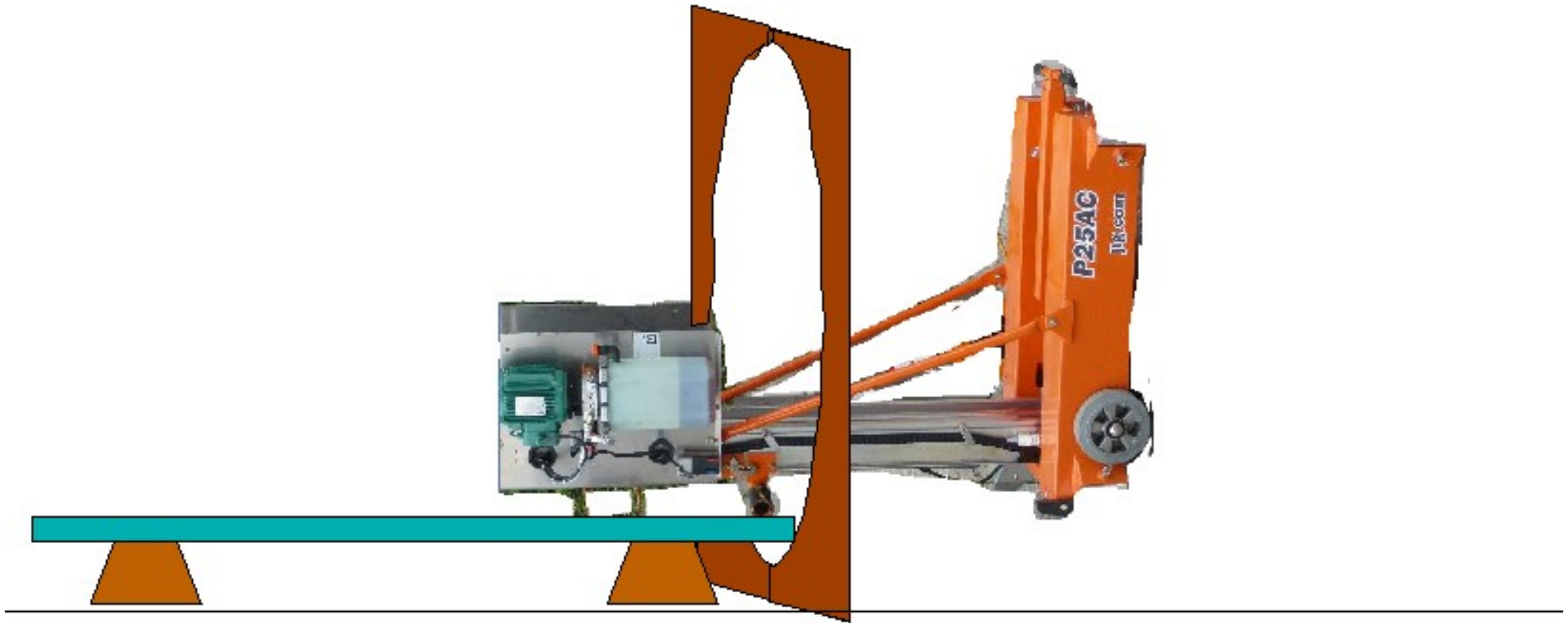
# unloading and entering the WT

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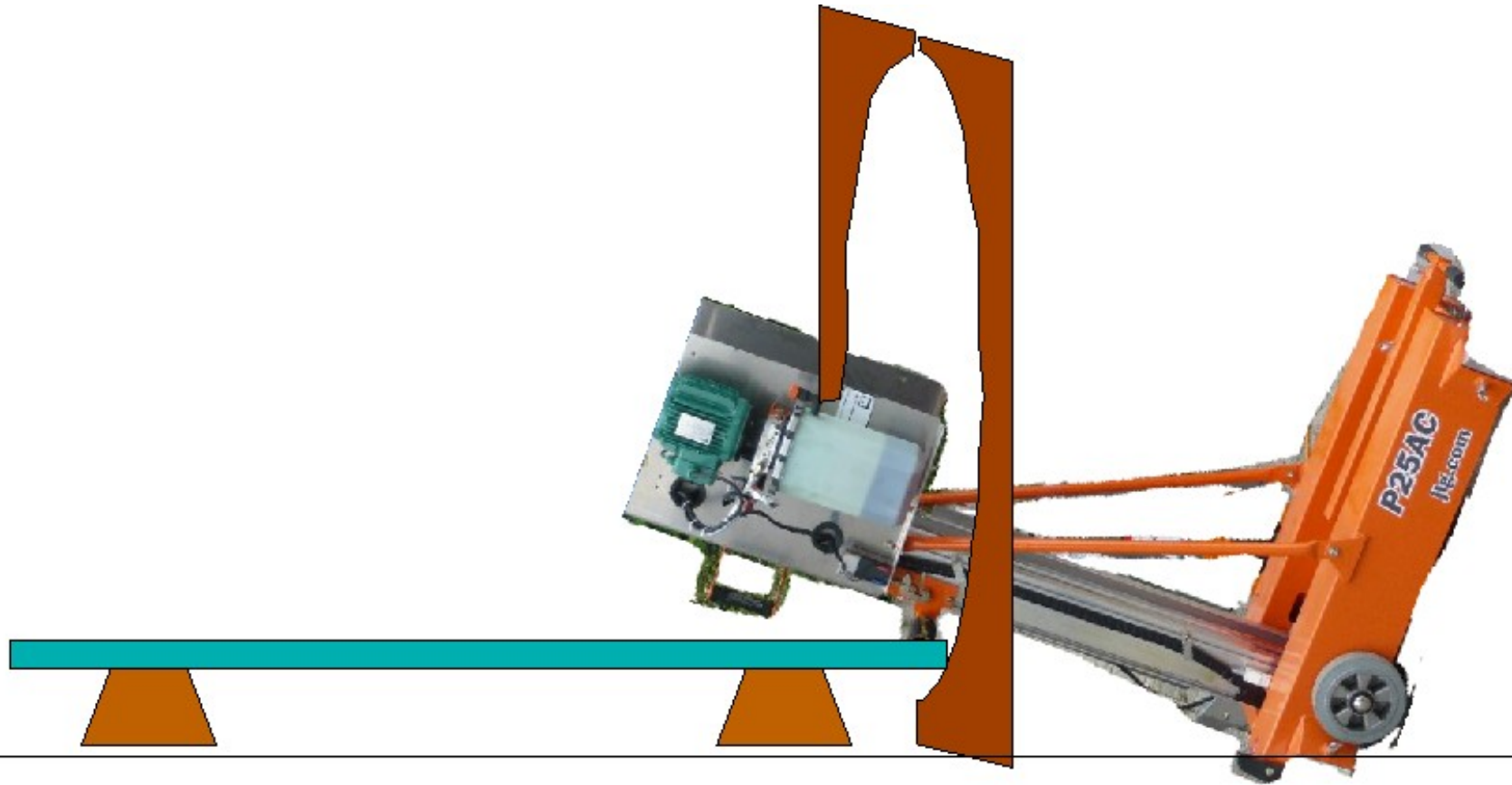
# unloading and entering the WT

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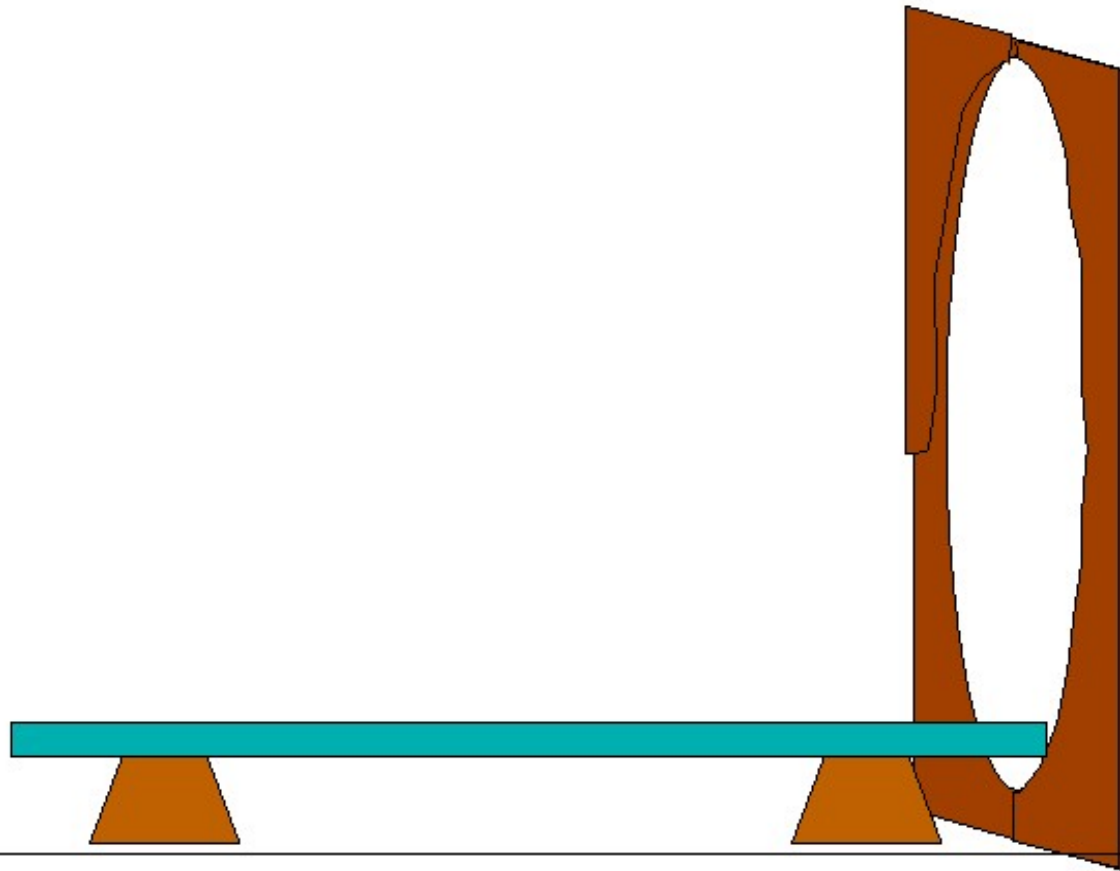
# unloading and entering the WT

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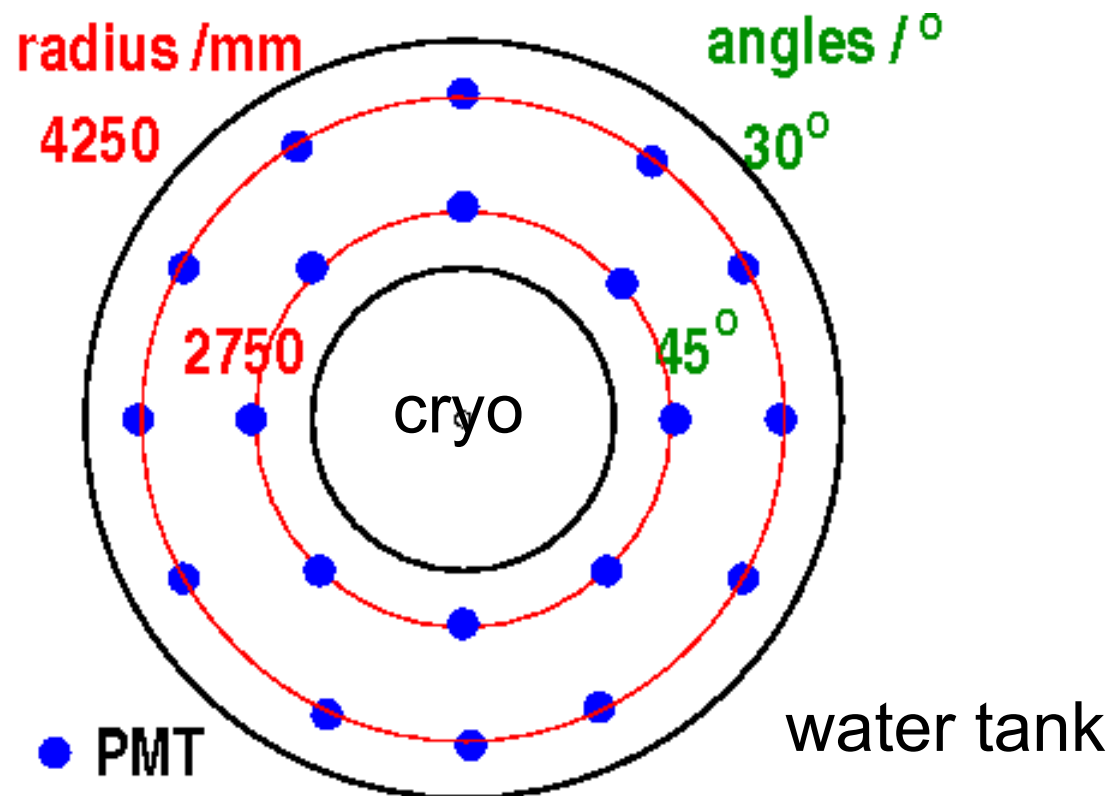
# unloading and entering the WT

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# studs for PMT on floor of WT



# conclusion & schedule

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tests successful

buy/rent 2 new personal lifters; heights up to 9,7m

keep one for GERDA ??

standard: all people **have drivers license** (July/August 08)

4 persons to work in WT

sequence: foil on WT wall

Sep

cable tray

Sep

PMT on wall, feed cables into chimney

Oct

PMT in pillbox

PMT on floor

LED&fibres+diffuser

?

isolate cryostat + VM foil

?

no cleaning after foil/PMT mounting (except floor)