NPS Wrapping procedure
2021/02/02

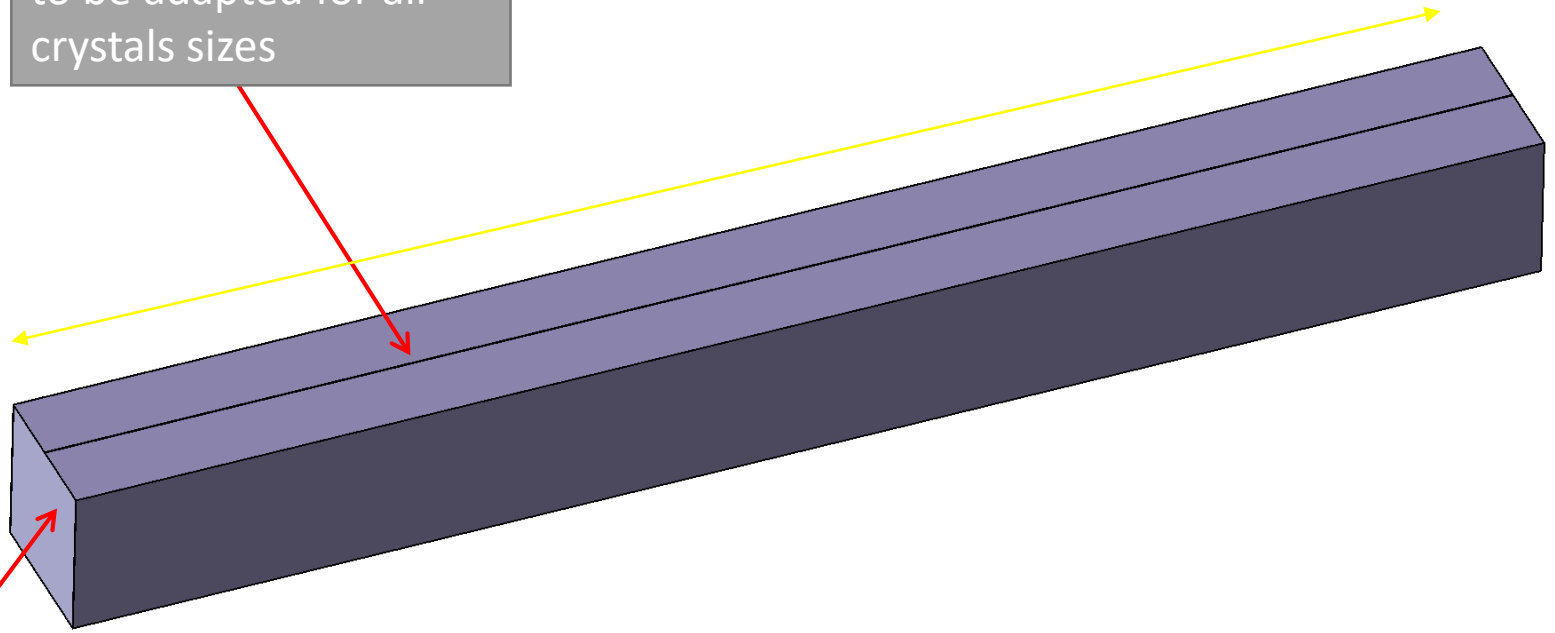
Unité mixte de recherche
CNRS-IN2P3
Université Paris-Sud 11

91406 Orsay cedex
Tél. : +33 1 69 15 73 40
Fax : +33 1 69 15 64 70
http://ipnweb.in2p3.fr

Reflective sheet 70 µ

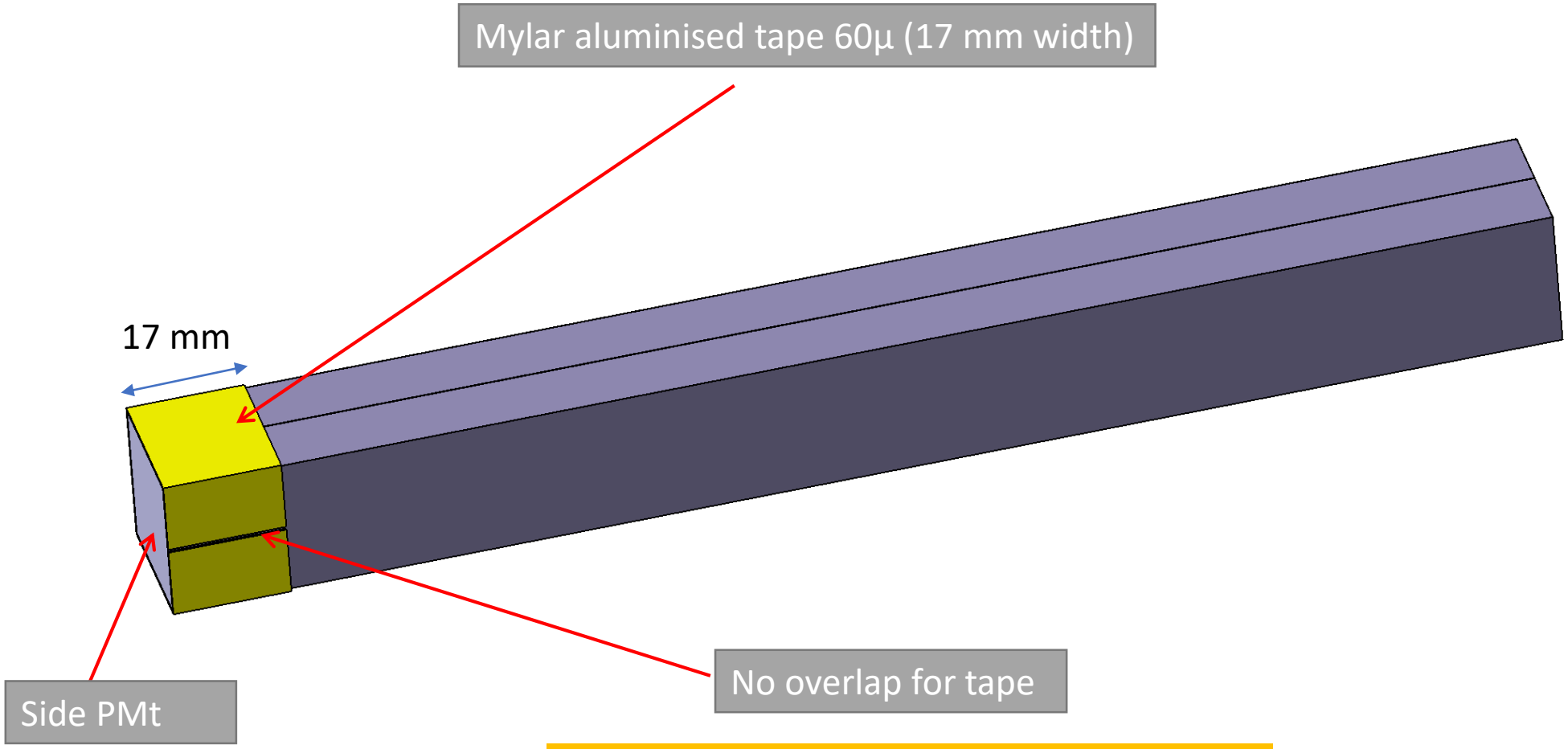
No overlap (gap 0,5mm to be adapted for all crystals sizes

Reflective sheet 200 mm length



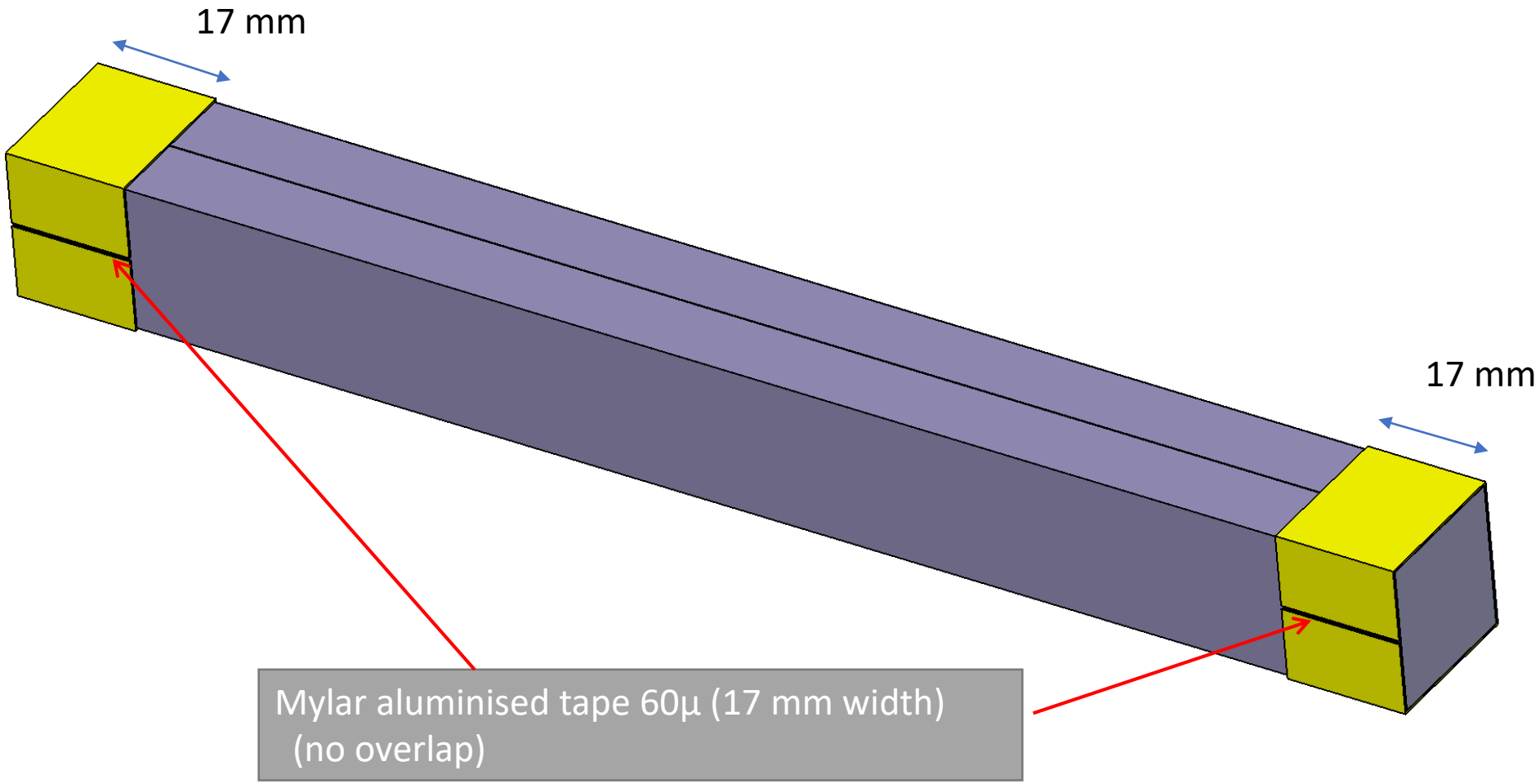
No reflective sheet on both extremities (will be glued on the plastic block part for front side and no reflective sheet side PMt)

Wrapping tape Crystal side PMt : tape 60 µ



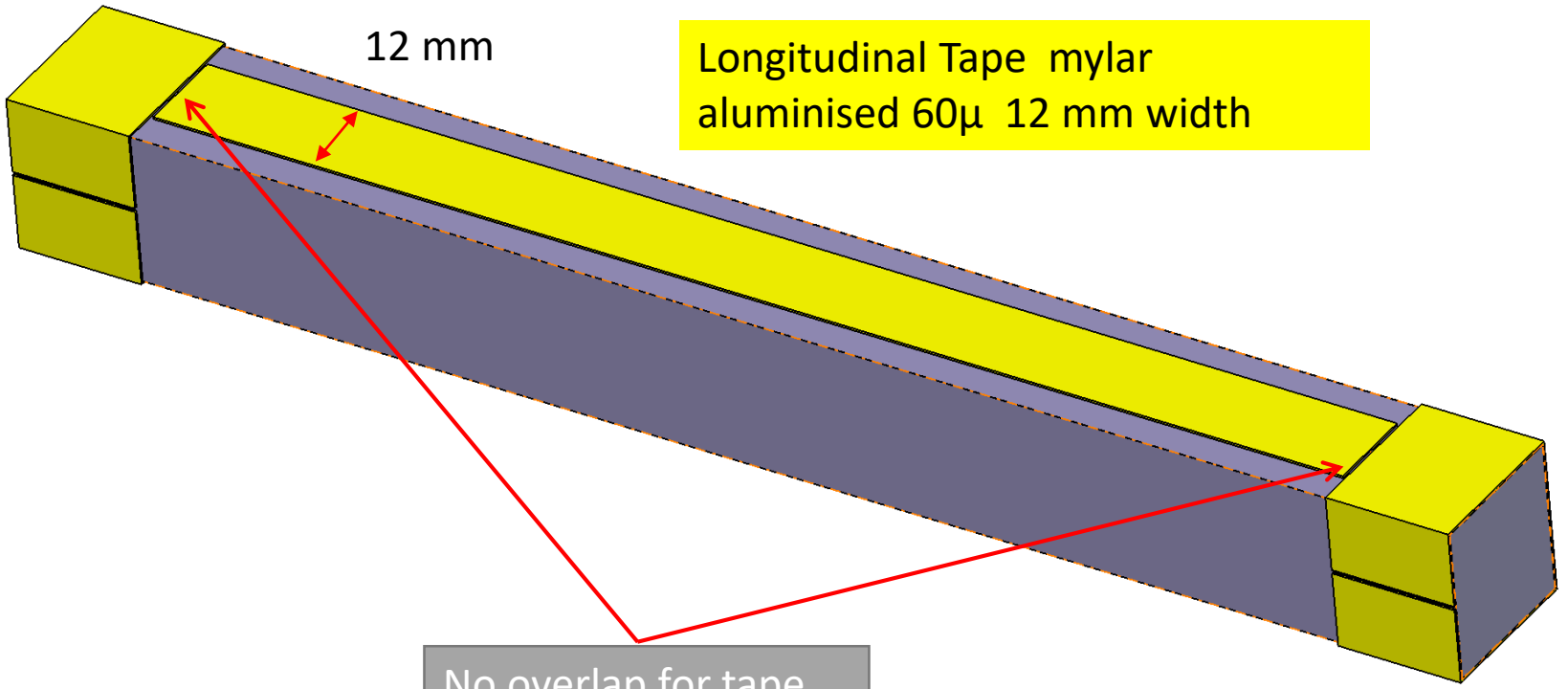
Cutting tape 90°/ cutting reflective sheet

Wrapping tape crystal side reflective sheet :tape 60 µ



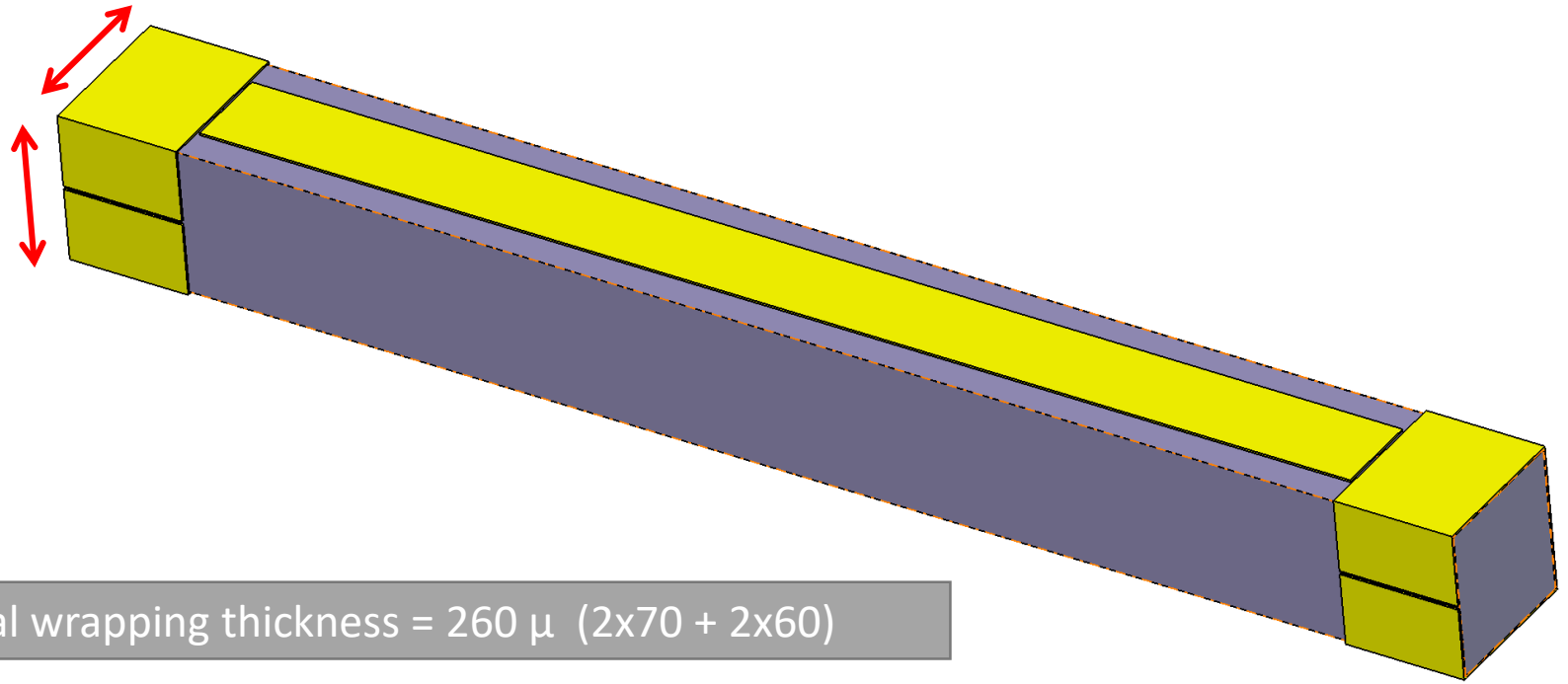
Cutting tape 90°/ cutting reflective sheet

Wrapping Longitudinal tape 60µ



Total wrapping thickness

Total horizontal wrapping thickness = 260µ (2x70 + 2x60)



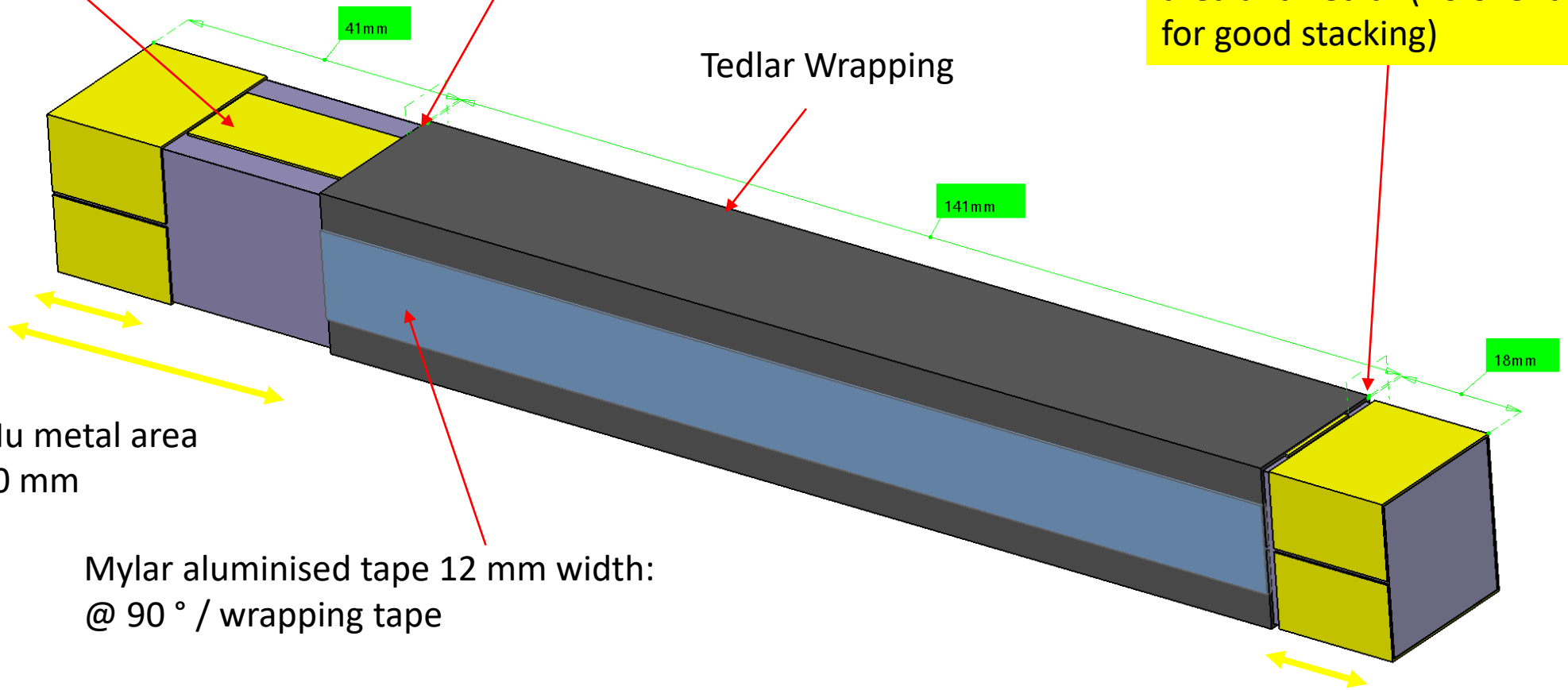
Total vertical wrapping thickness = 260 µ (2x70 + 2x60)

TEDLAR wrapping

1 mm gap between Mu metal area and Tedlar (no overlap for good stacking)

Wrapping tape

1 mm gap between stacking area and Tedlar (no overlap for good stacking)



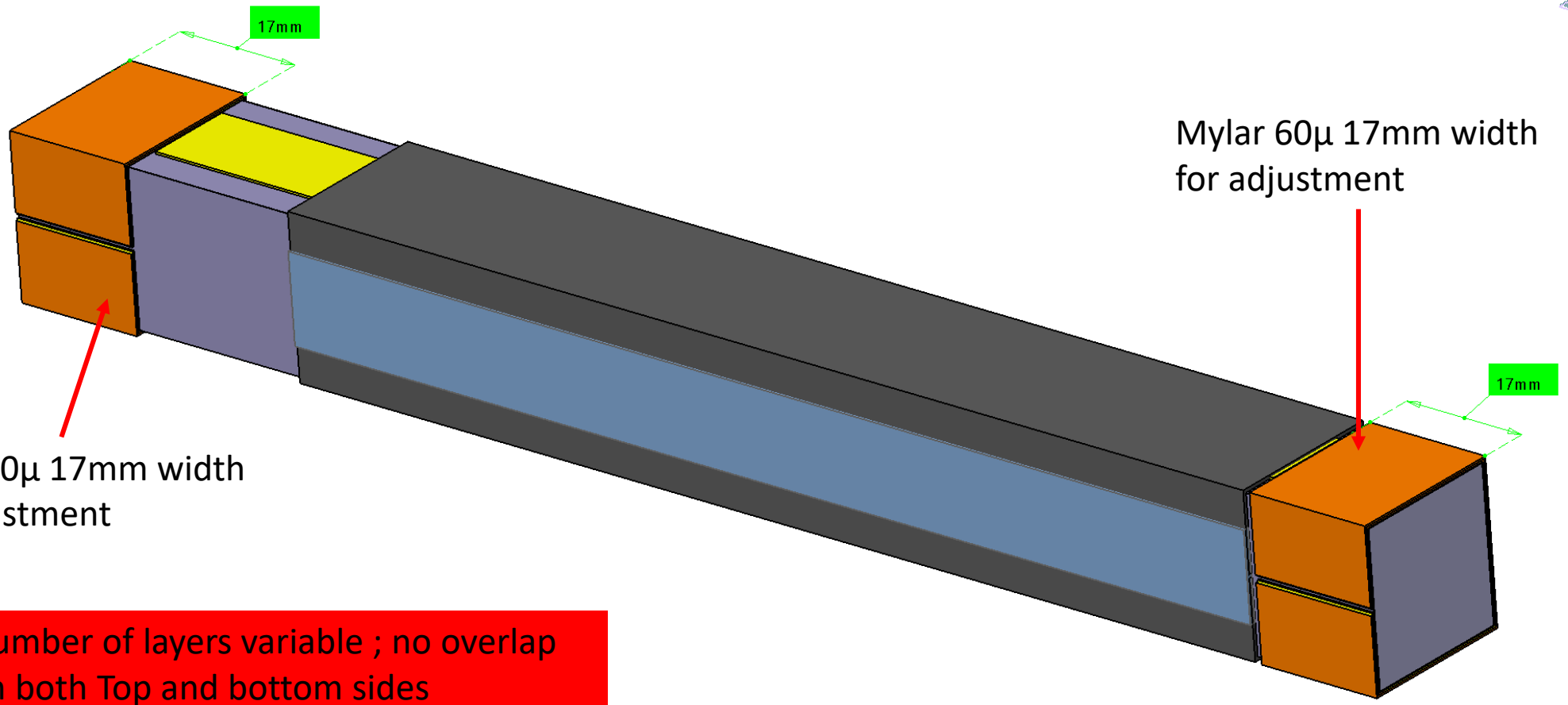
Rear stacking area 17 mm

Mu metal area 40 mm

Mylar aluminised tape 12 mm width: @ 90 ° / wrapping tape

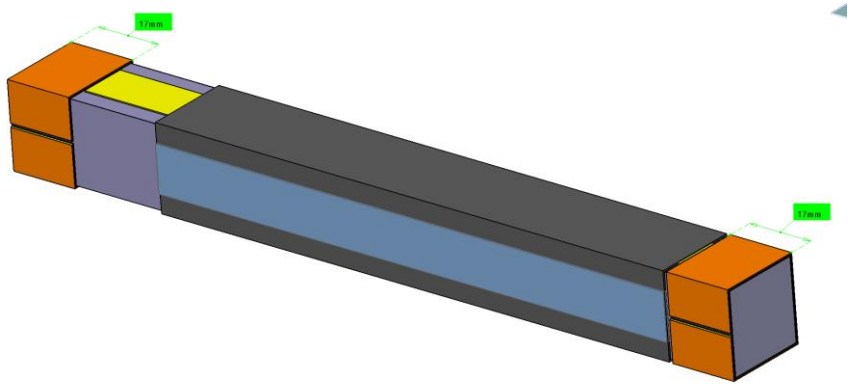
Front stacking area 17 mm

Adjustment tape : mylar 60µ 17mm width



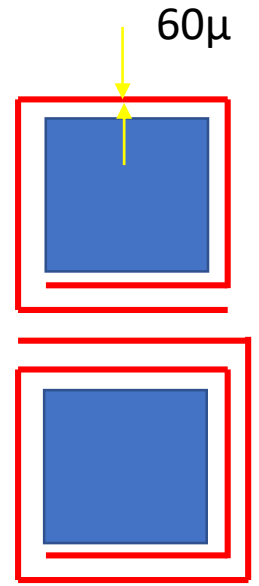
Number of layers variable ; no overlap on both Top and bottom sides

Adjustment Tape : mylar 60µ 17mm width



These gaps are based from Jlab measurement values
See next slide for calculations

For a alveoli 21mm inner dimension (nominal dimension) : the Gap is (between alveoli and crystal wrapped)
Gap min (21- 20,86=0,14mm)
Gap Max (21- 20,69=0,31mm)
Mean Gap Siccas (21-20,80 = 0,20mm)
Mean Gap Crytur (21-20,72 = 0,28mm)



Mean gap :
Siccas 0,20 ≈ 3 x 0,06 = 18µ 1 turn +1/4 turn of tape 60 microns

Crytur 0,28 ≈ 4 x 0,06 = 24µ 1 turn + ½ turn of tape 60 microns

Gap between alveoli and crystal (theorical value)

The measurement for CRYTUR gives :
mean value : 20,46mm (20,72 with wrapping)
Max value : (20,46 + 3σ) = 20,46+ 3*0,01 =20,49mm (20,75 with wrapping)
min Value : (20,46-3 σ) = 20,46-3*0,01 = 20,43 mm (20,69 with wrapping)

The measurement for SICCAS gives :
mean value : 20,54mm (20,80 with wrapping)
Max value : (20,54 + 3σ) = 20,54+ 3*0,02 =20,60mm (20,86 with wrapping)
min Value : (20,54 -3 σ) = 20,54 - 3*0,02 = 20,48 mm (20,74 with wrapping)

Measurement values from Jlab

The extrema gives with wrapping :
Max value : **Siccas 20,86mm**
min Value : **Crytur 20,69mm**

For a alveoli 21mm inner dimension (nominal dimension) : pitch 21,5 mm the Gap is
Gap min (21- 20,86=0,14mm)
Gap Max (21- 20,69=0,31mm)
Mean Gap Siccas (21-20,80 = 0,20mm)
Mean Gap Crytur (21-20,72 = 0,28mm)