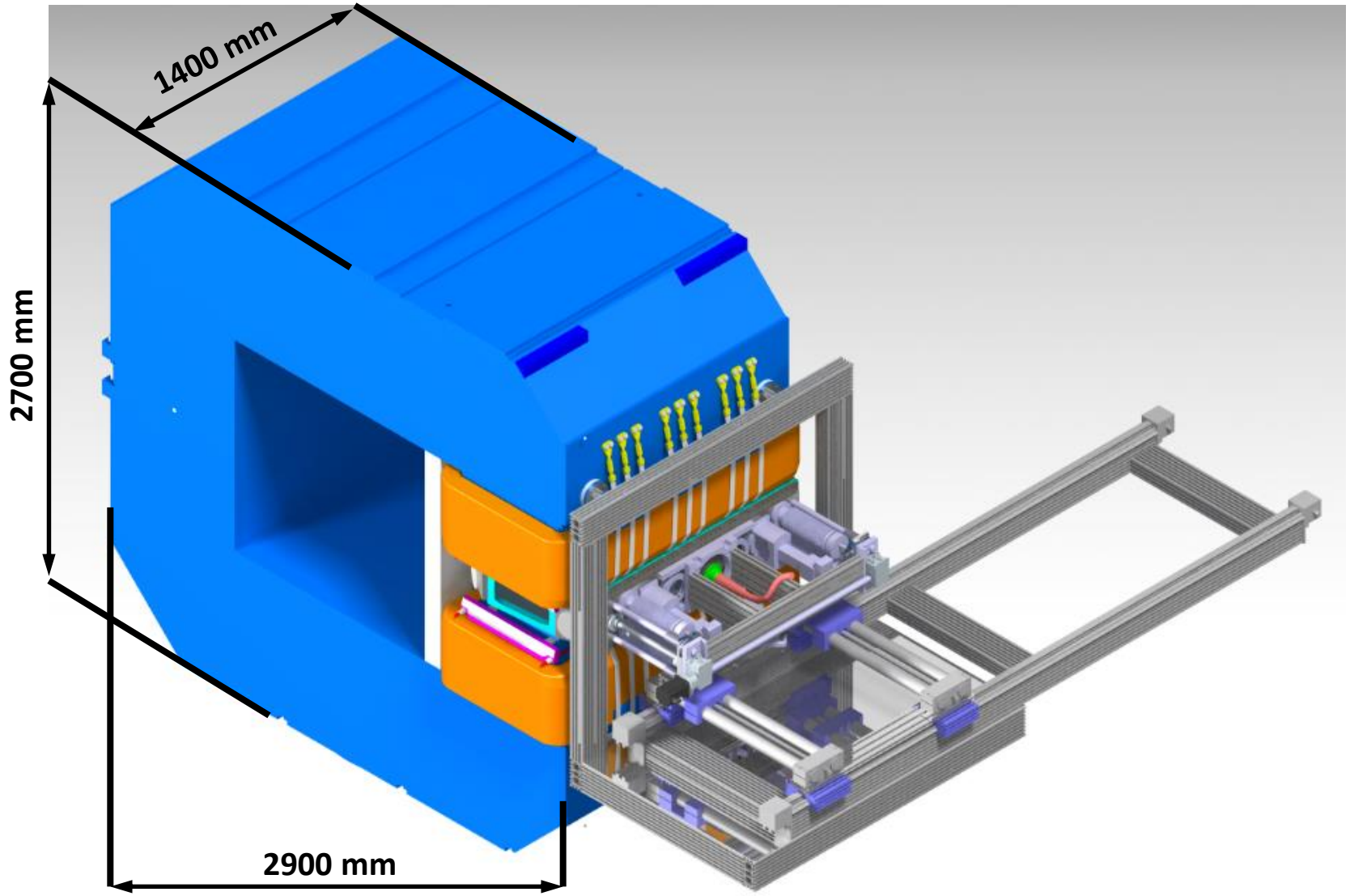
Electrostatic and ExB deflector development

08.03.2018 I Kirill Grigoryev
Nuclear Physics Institute, Forschungszentrum Jülich

ANKE D2 magnet with deflector support



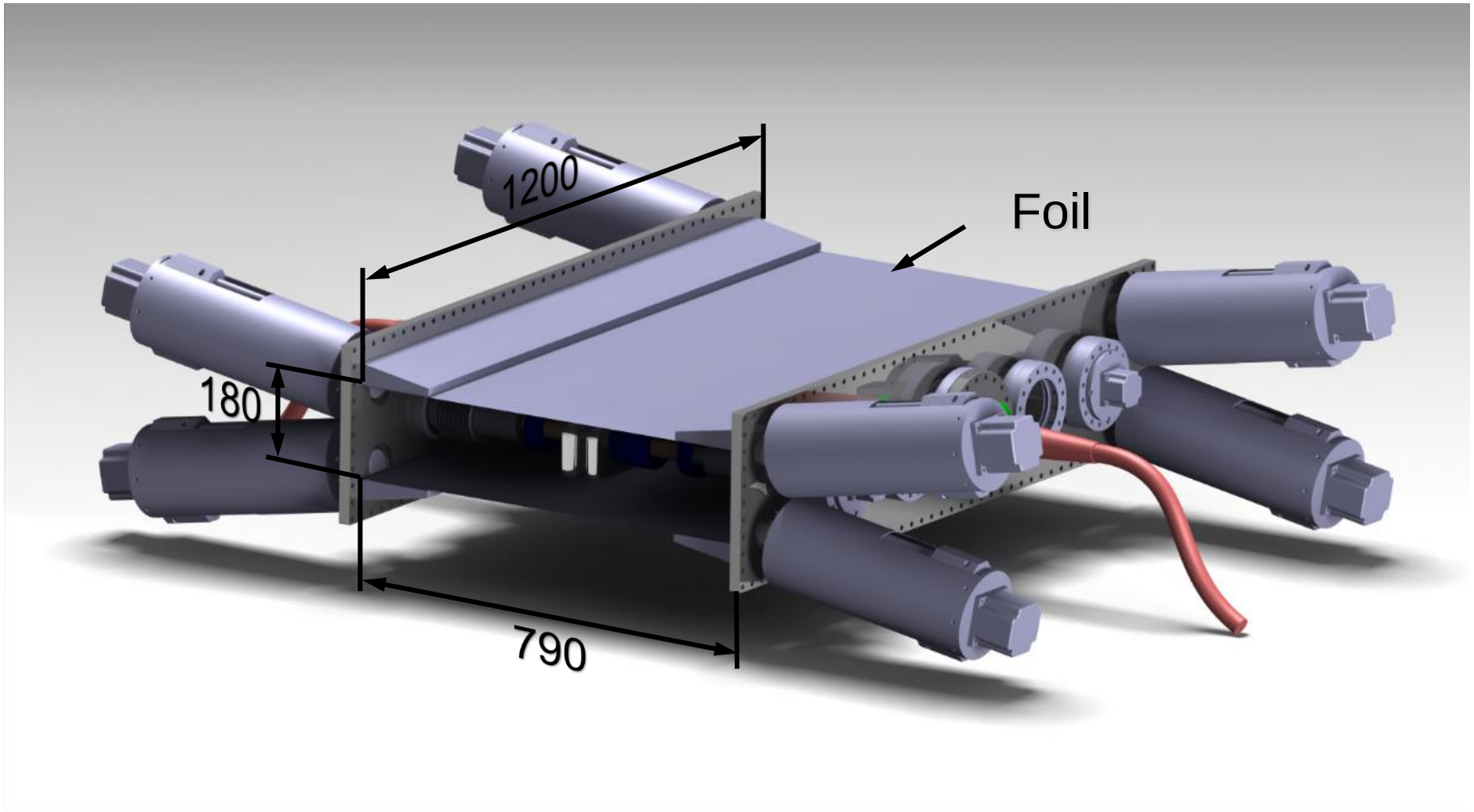
D2 parameters:

B_{max} = 1.6T
Mass = 64 t
Gap height = 200 mm

Deflector:

Length = 1020 mm
Height = 90 mm
Gap = 20 – 120 mm

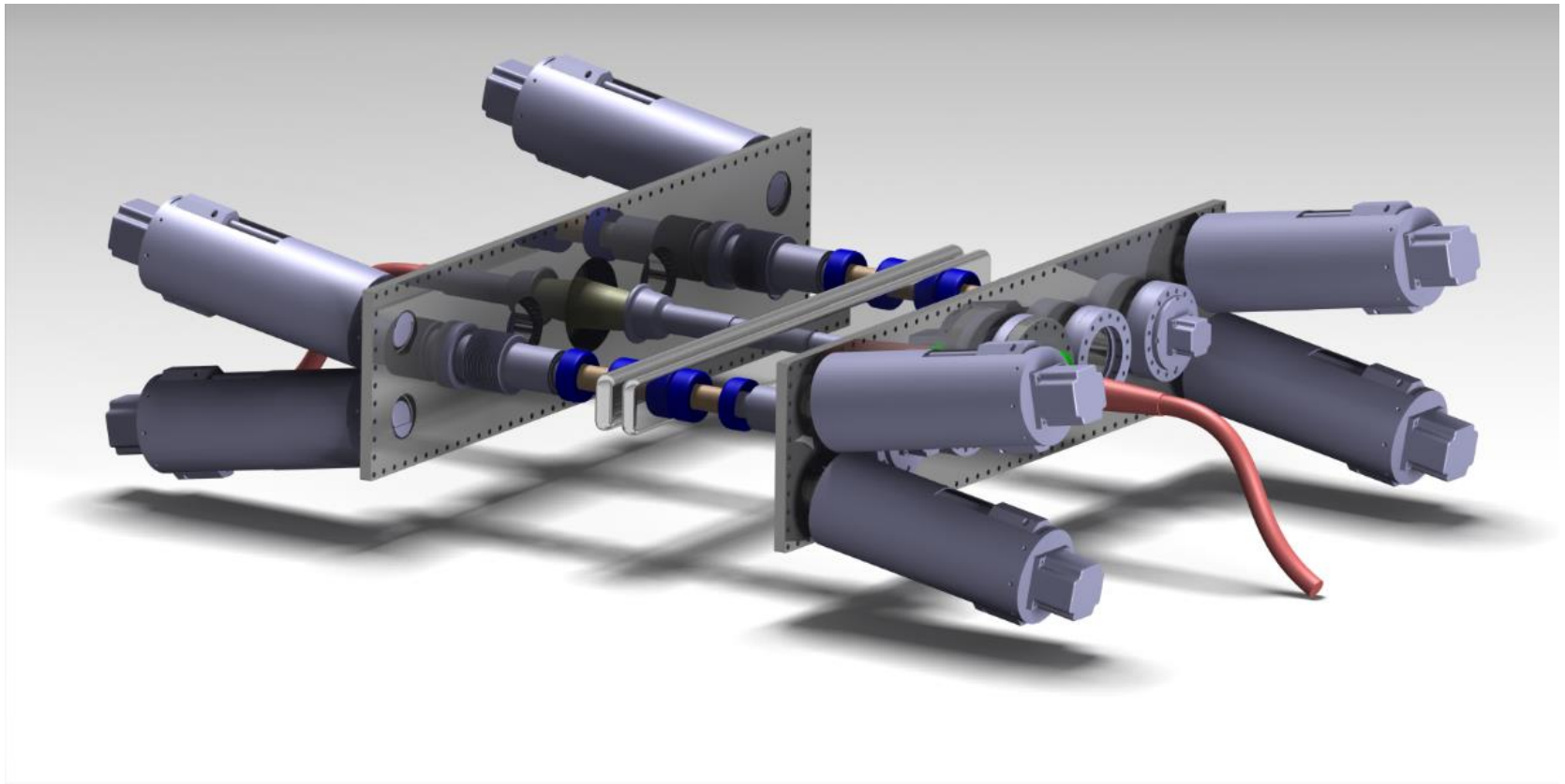
Deflector with protection foil



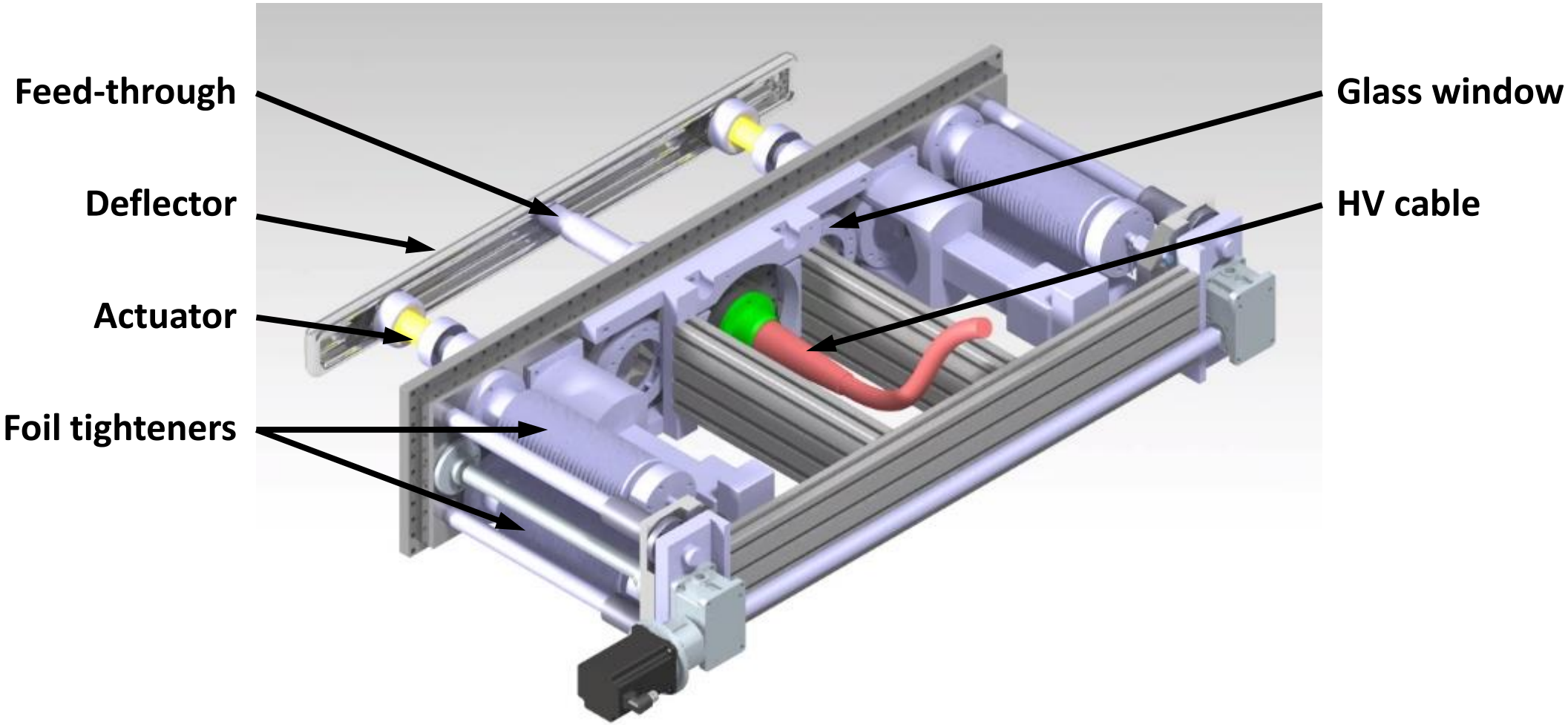
Foil

- between chamber wall and deflector
- at the ground potential
- deflector „sees“ only the shield

Individual parts



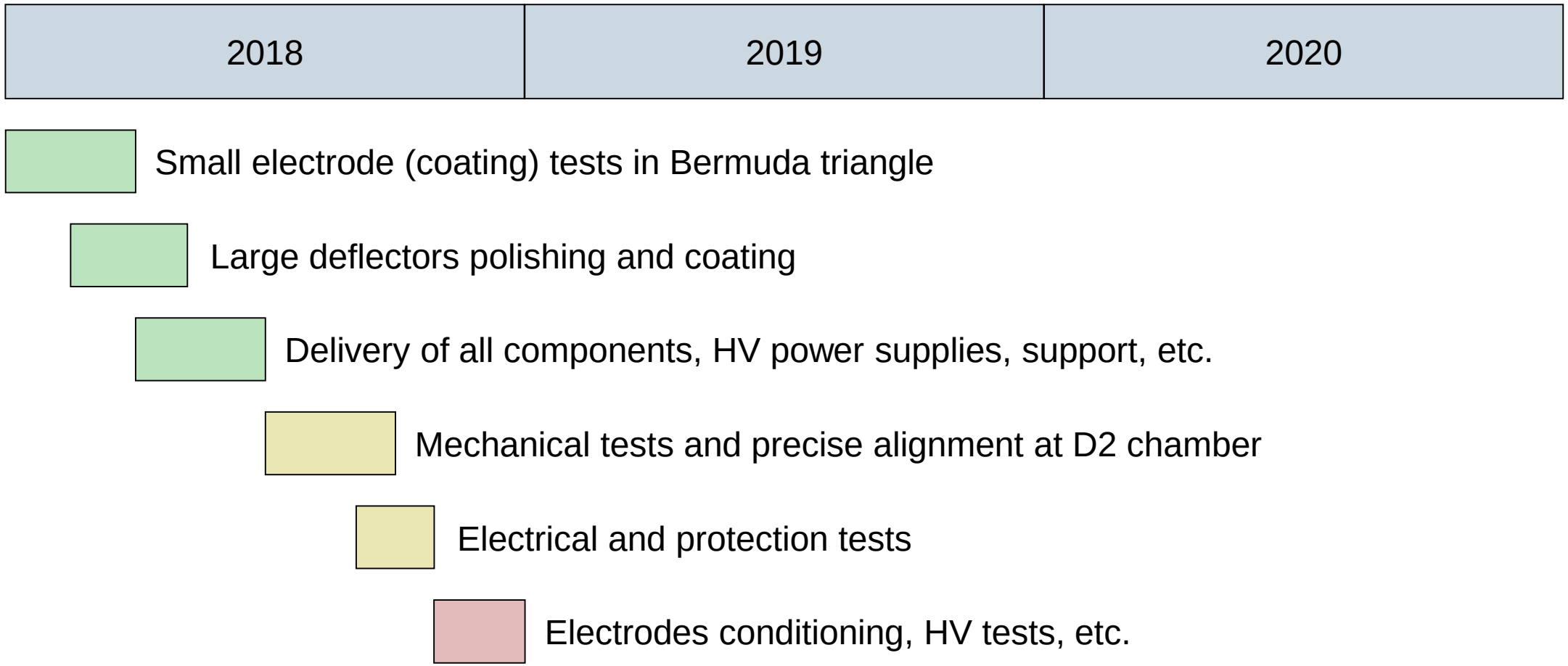
Individual parts



Deflector after production

Production features

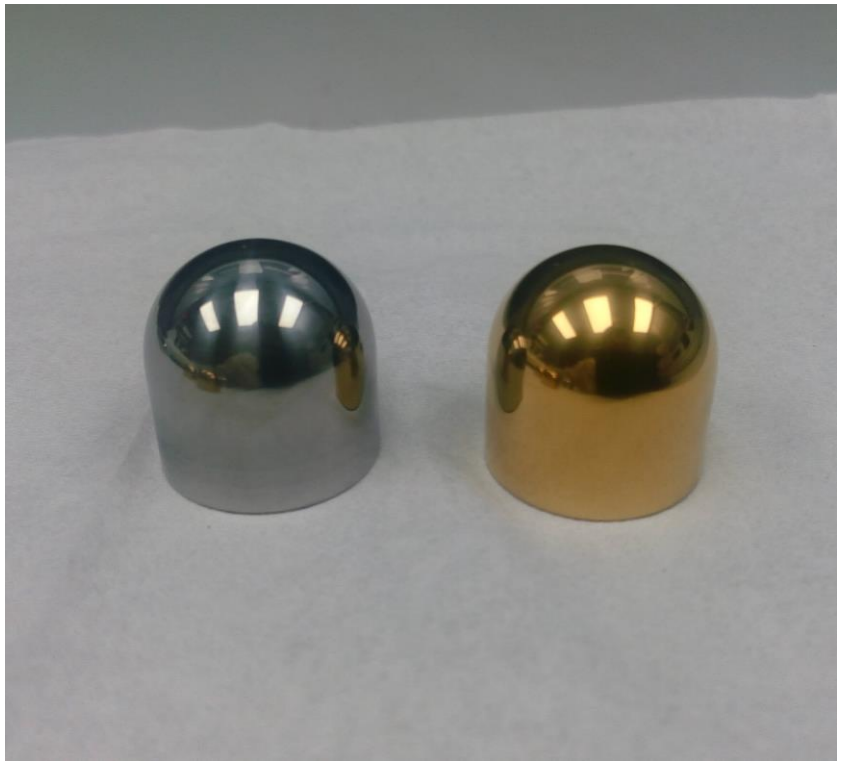
Timeline for 2018+



Bermuda triangle at COSY

December 2017

Coating tests (1)

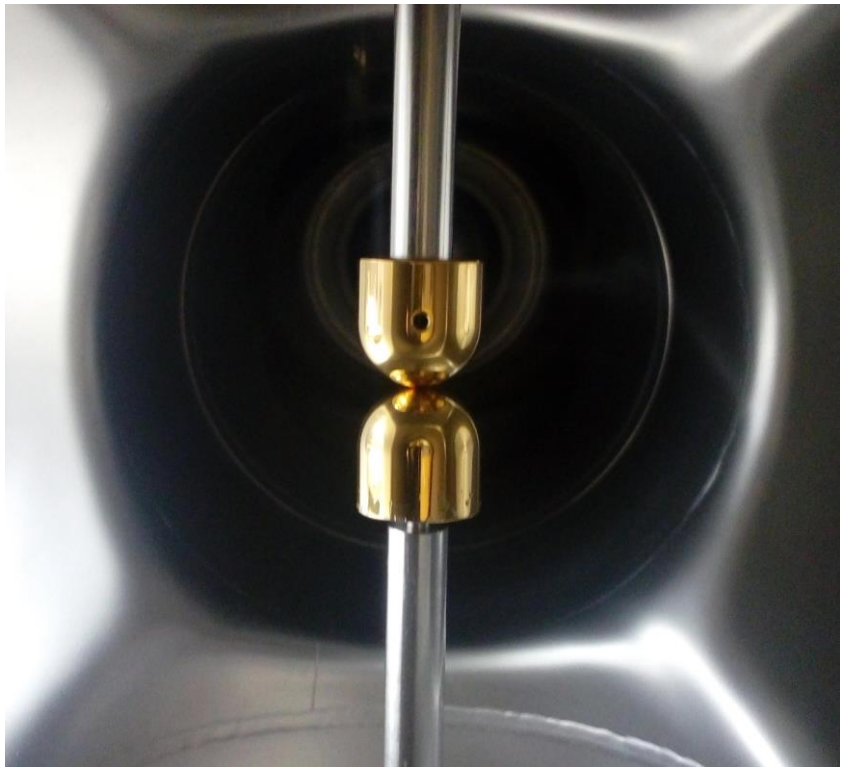


$$E_{max} = F \cdot U / S$$

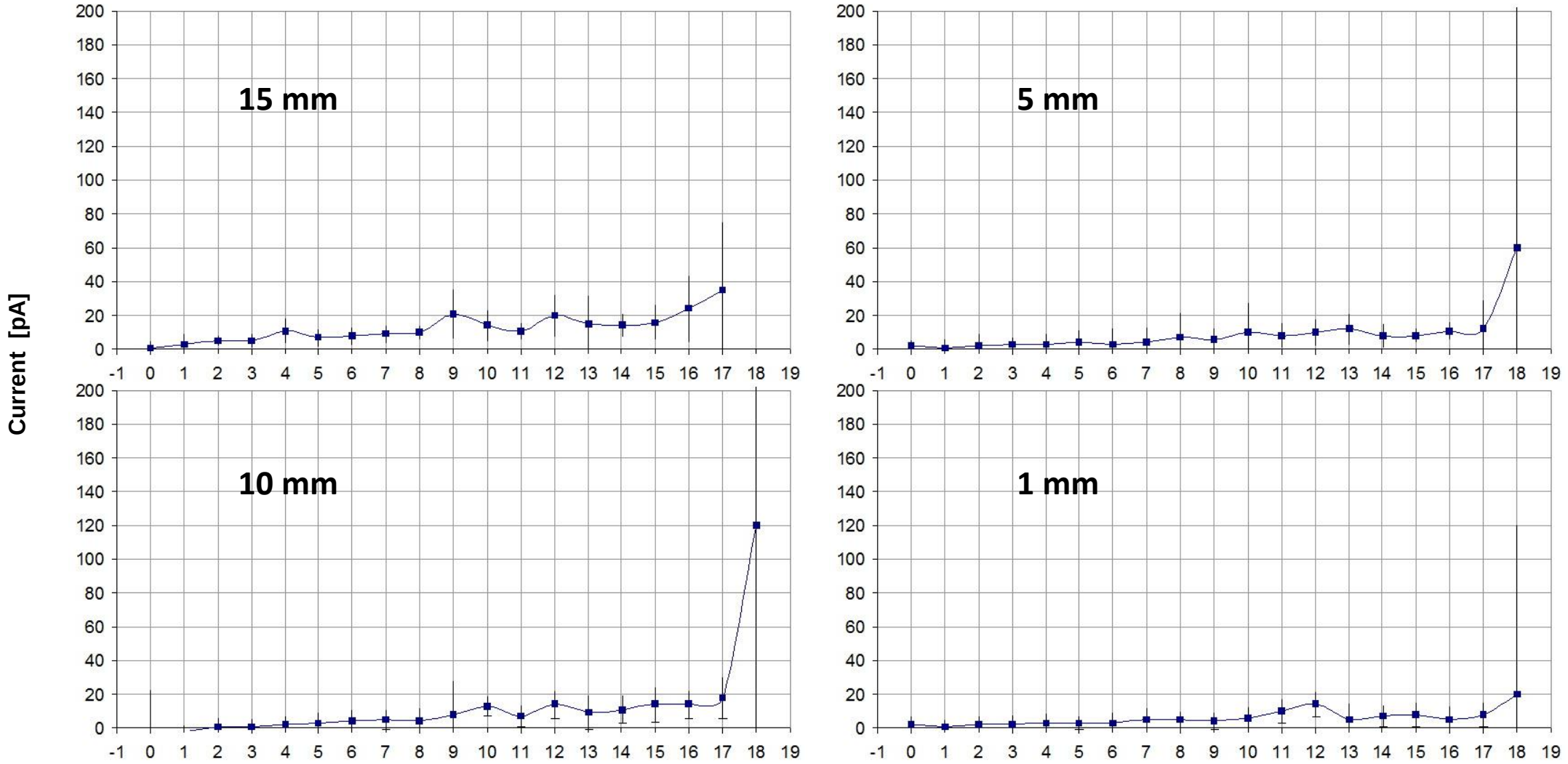
where **S** – spacing and
F – field enhancement factor

For two half circles 10mm radius:

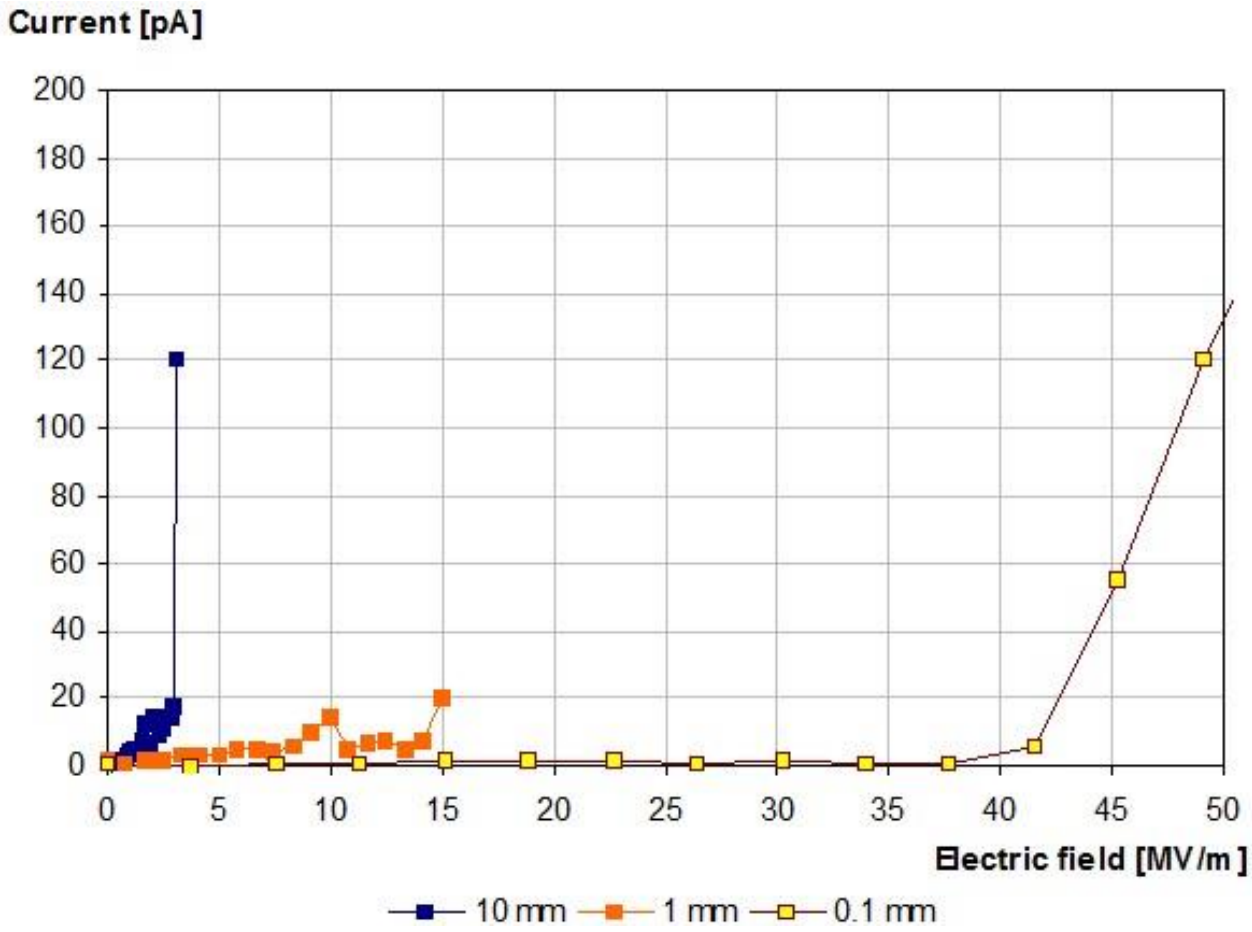
S → 0mm	:	F = 0.75
S = 0.5mm	:	F = 0.79
S = 1mm	:	F = 0.83
S = 2.9mm	:	F = 1
S = 10mm	:	F = 1.73

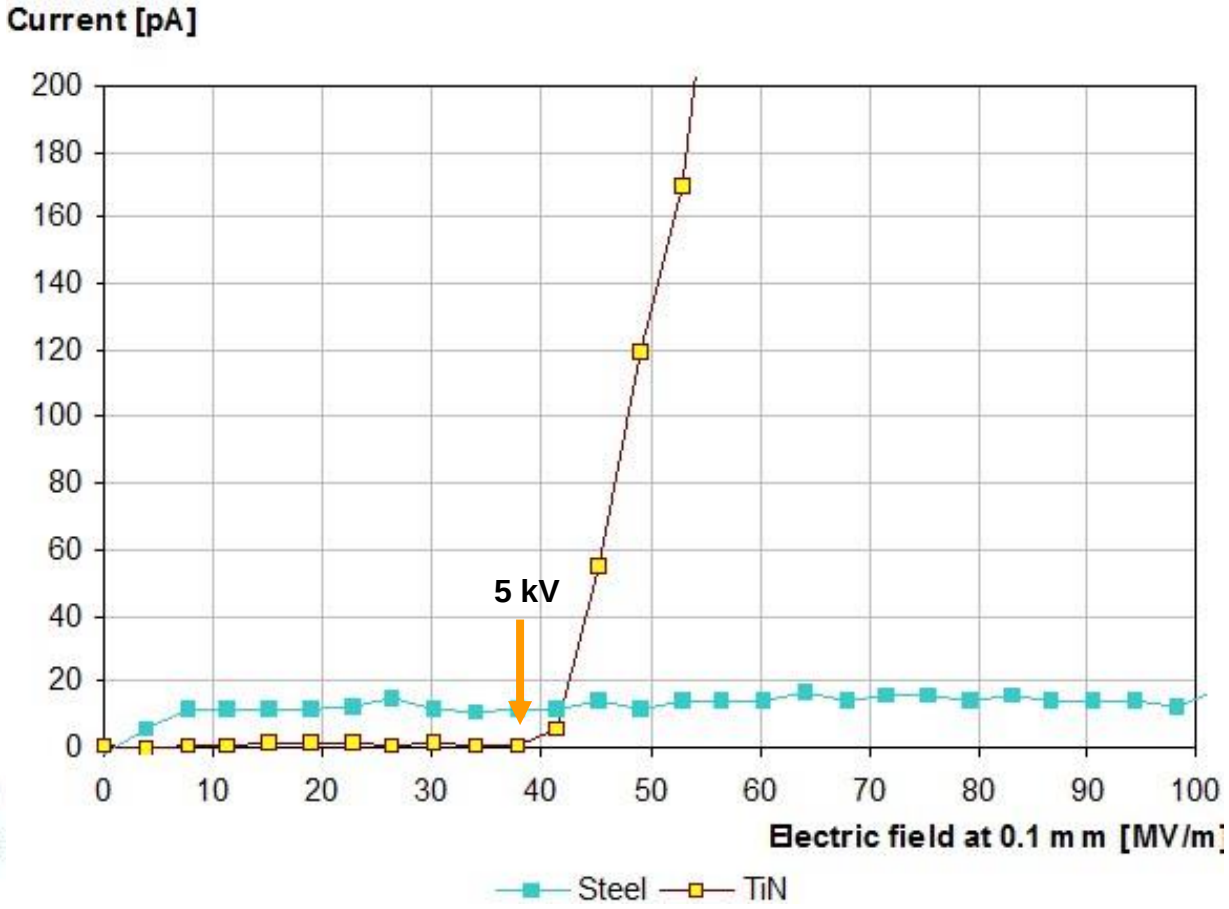


Coating tests (2)



Coating tests (3)





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Timeline for 2018+