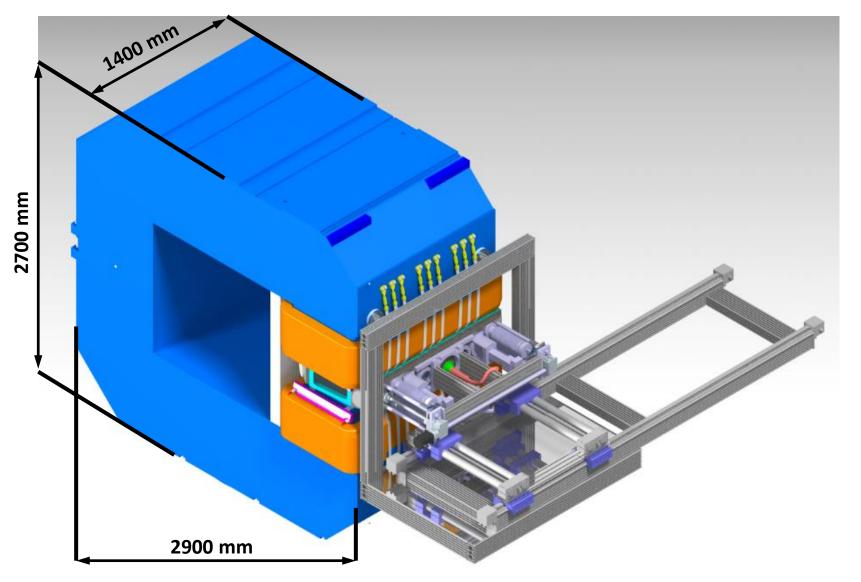


Electrostatic and ExB deflector development

08.03.2018 | Kirill Grigoryev Nuclear Physics Institute, Forschungszentrum Jülich



ANKE D2 magnet with deflector support



D2 parameters:

 $B_{\text{max}} = 1.6T$

Mass = 64 t

Gap height = 200 mm

Deflector:

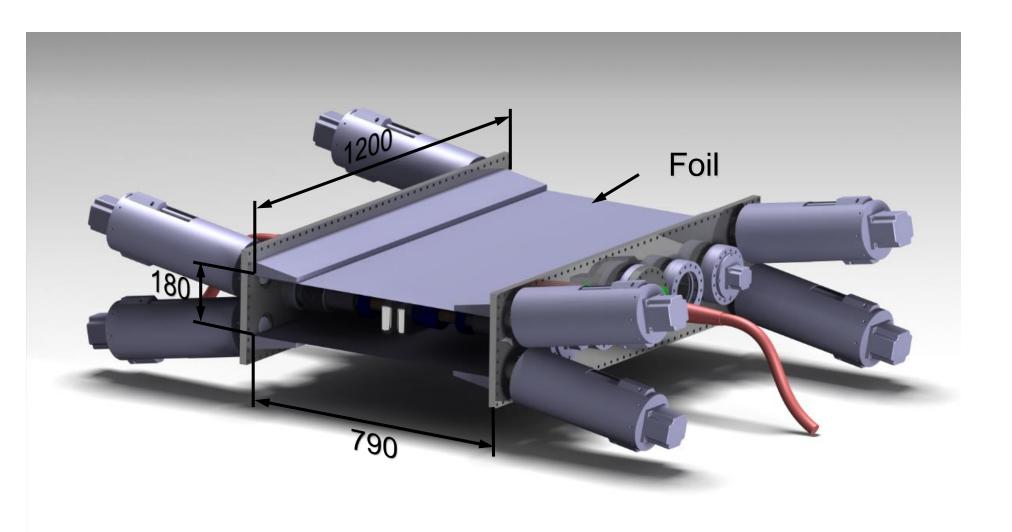
Length = 1020 mm

Height = 90 mm

Gap = 20 - 120 mm



Deflector with protection foil



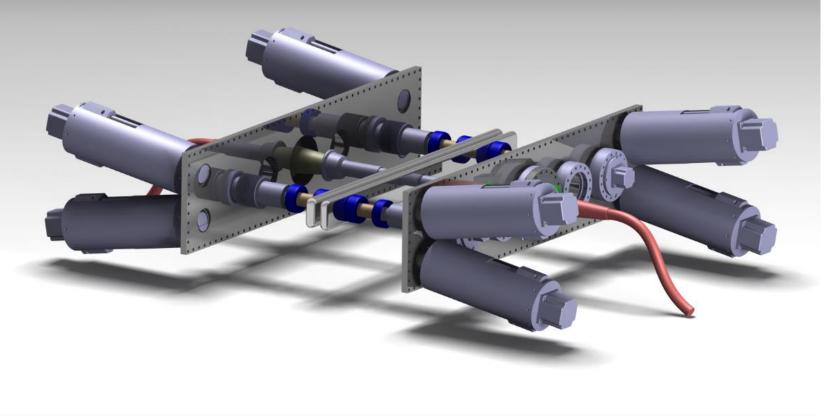
Foil

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



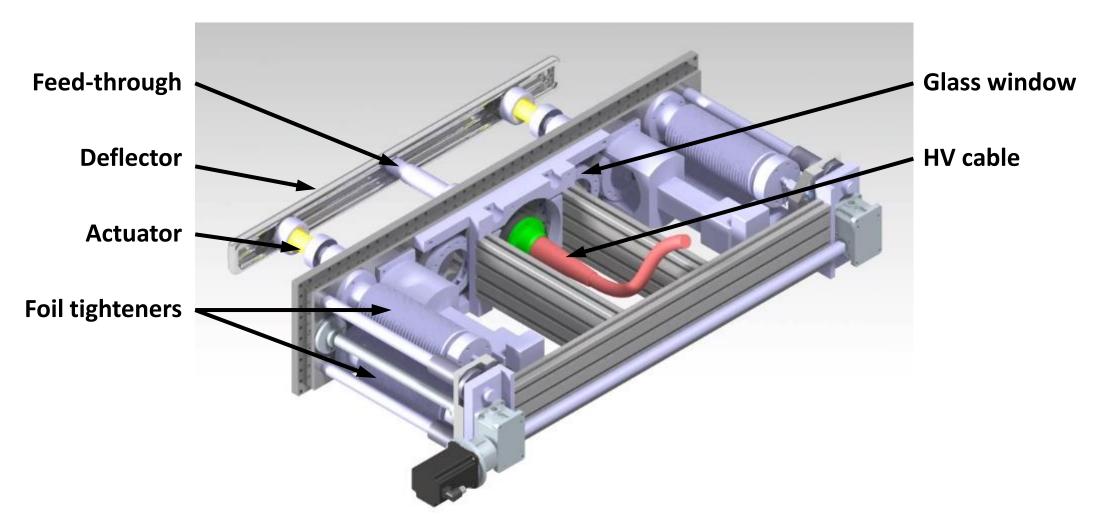
Individual parts







Individual parts





Deflector after production







Production features









K.Grigoryev | Deflector development

Timeline for 2018+

2018	2019	2020	
Small electrode (coating) tests in Bermuda triangle			
Large deflectors polishing and coating			
Delivery of all components, HV power supplies, support, etc.			
Mechanical tests and precise alignment at D2 chamber			
Electrical and protection tests			
	Electrodes conditioning, HV tests	s, etc.	



Bermuda triangle at COSY



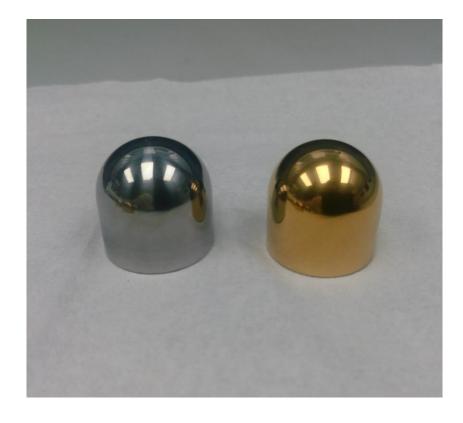
08.03.2018



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:

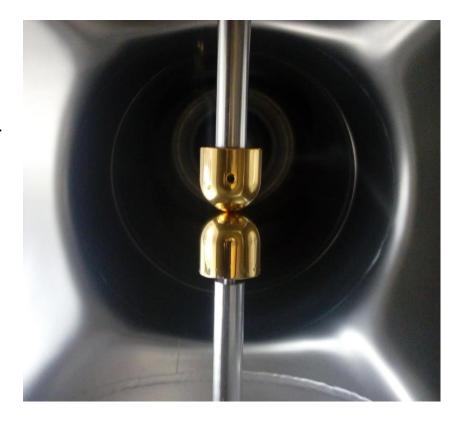
 $S \rightarrow 0$ mm : F = 0.75

S = 0.5 mm : F = 0.79

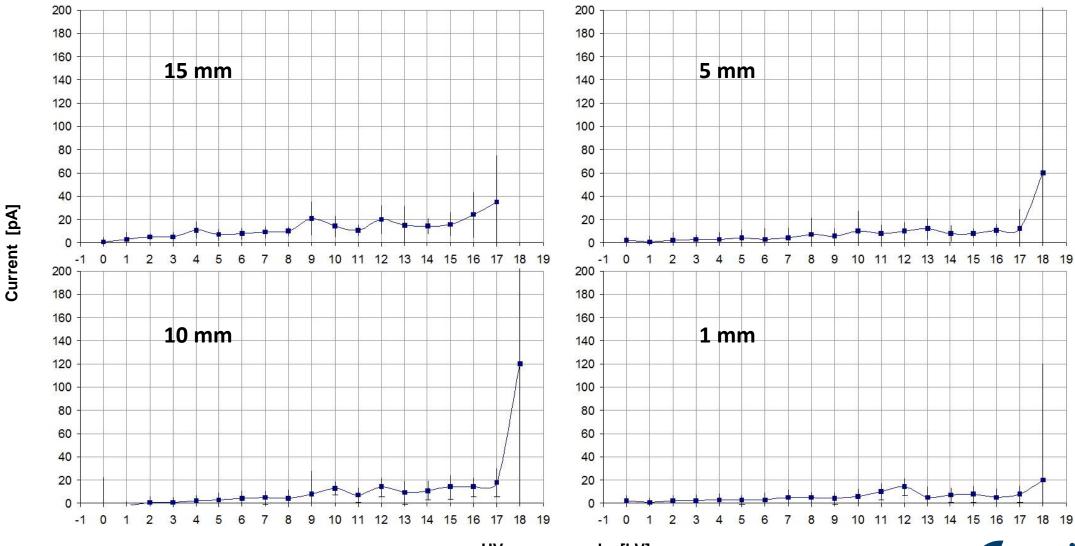
S = 1mm : F = 0.83

S = 2.9 mm : F = 1

S = 10mm : F = 1.73



Coating tests (2)

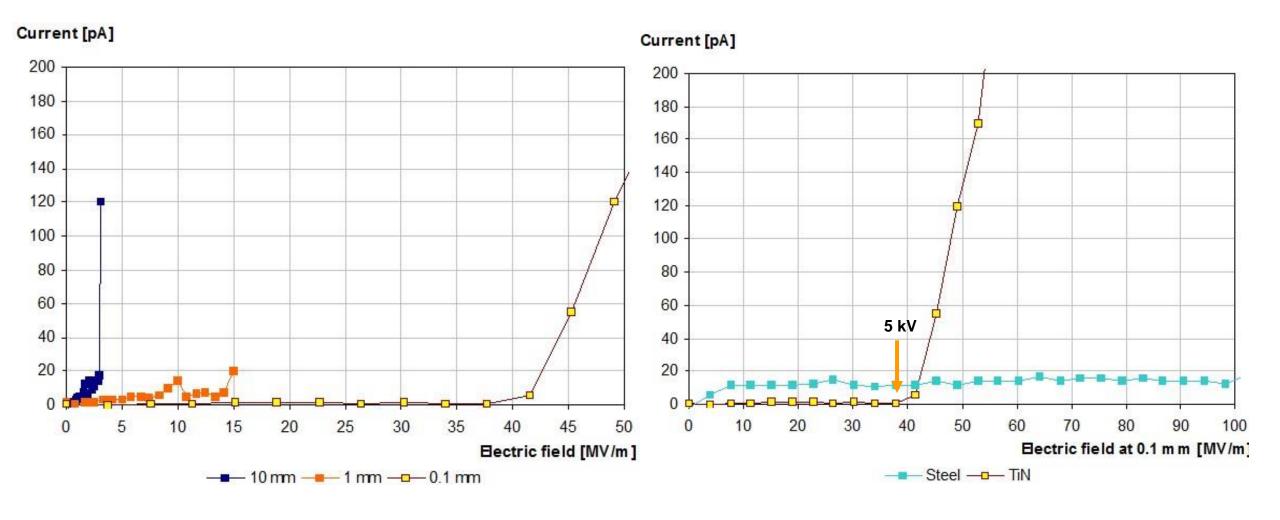


HV power supply [kV]



Page 11

Coating tests (3)





Timeline for 2018+

2018	2019	2020	
Small electrode (coating) tests in Bermuda triangle			
Large deflectors polishing and coating			
Delivery of all components, HV power supplies, support, etc.			
Mechanical tests and precise alignment at D2 chamber			
Electrical and protection tests			
	Electrodes conditioning, HV tests	s, etc.	

