



# VACOM

**Products and services  
for accelerators**

## What harms the success of scientists?

Communication between industry and scientists

Why: - different view, experience, background

Leads to: - misunderstanding of demands  
- time-consuming communication

# What can VACOM do to make you more successful?

We mind the gap!

- Select perfectly suited contact person
- Investment in innovative equipment
- Offer beneficial products and processes
- Accept a continuous change

# What are challenging fields?

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Availability of right material

(Ultra) clean vacuum components

Beam detection

Pressure measurement

Limited space and time for assembling

## VACOM offers solutions

Some examples

## Different stainless steel types on stock

- 1.4301
- 1.4404
- 1.4429-ESU (frequently used in accelerators)

	C	Si	Mn	P	S	N	Cr	Mo	Ni	Co
Norm	<0,03	<b>&lt;0,5</b>	<2	<b>&lt;0,03</b>	<b>&lt;0,005</b>	<b>0,14 – 0,18</b>	16,5 – 18,5	2,5 - 3	12,5 – 13,5	<b>&lt;0,05</b>

CERN and DESY specifications  $\mu_r < 1,005$

Other materials on request; like Aluminum

Catalog parts mostly in 304, 316L, Al, Cu  
most parts also available in 316LN

# Customized chambers

Max. Chamber Size:  
2000\*1000\*1000 mm<sup>3</sup>

Tolerances:

0,1°

|| 0,1

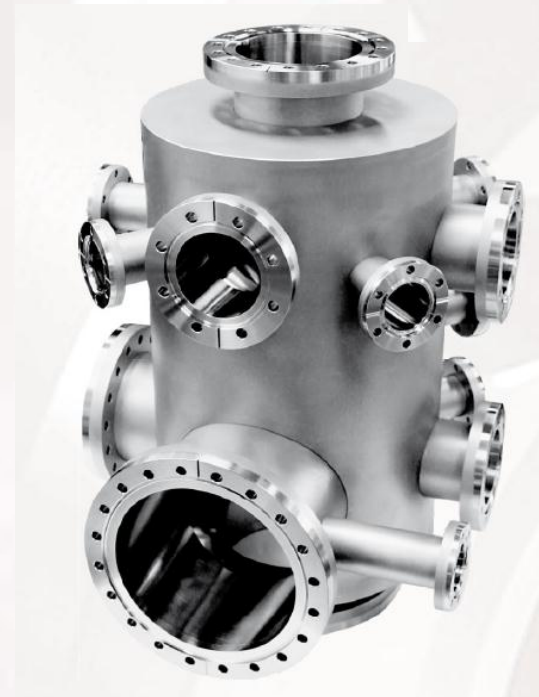
Ra 0,2

0,1mm

High temperature brazing

Vacuum firing

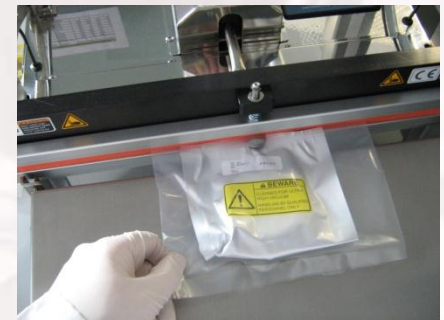
Aluminum chambers





# Cleaning

- Automatically controlled ultra-sonic cleaning
- Bake out  
(chambers up to 300°C)
- Vacuum firing of components
- Outgassing measurement
- Particle measurement
- Clean room assembly  
and packaging





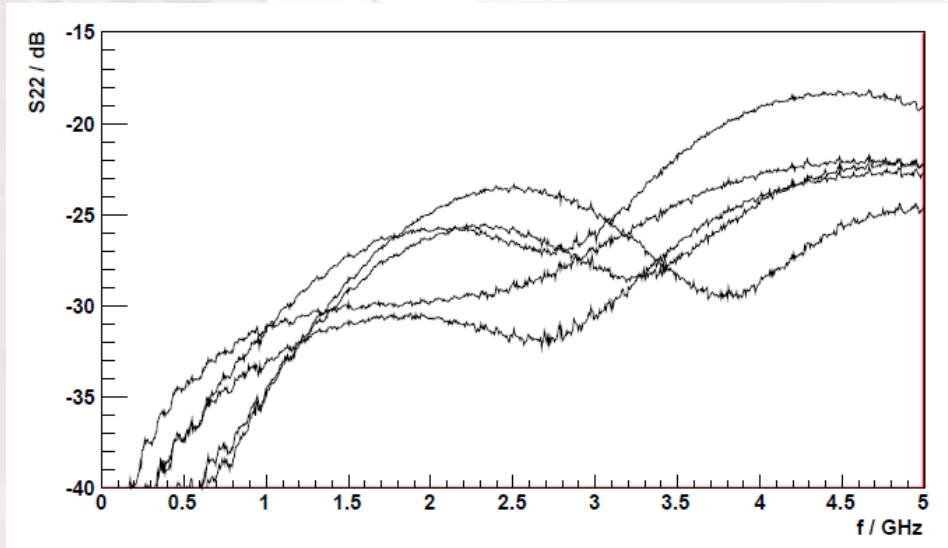
- We are well experienced in
  - Optical fibers feedthroughs
    - Single- and multimode
  - Electrical feedthroughs
    - up to 1 kA
    - up to 100 kV
    - up to ~12 GHz
- Special parts on request
- Custom design



# Button BPM

Developed together with DESY and our partner

- < -25dB up to 2.5 GHz
- DN25 CF-flange
- Type N feedthrough

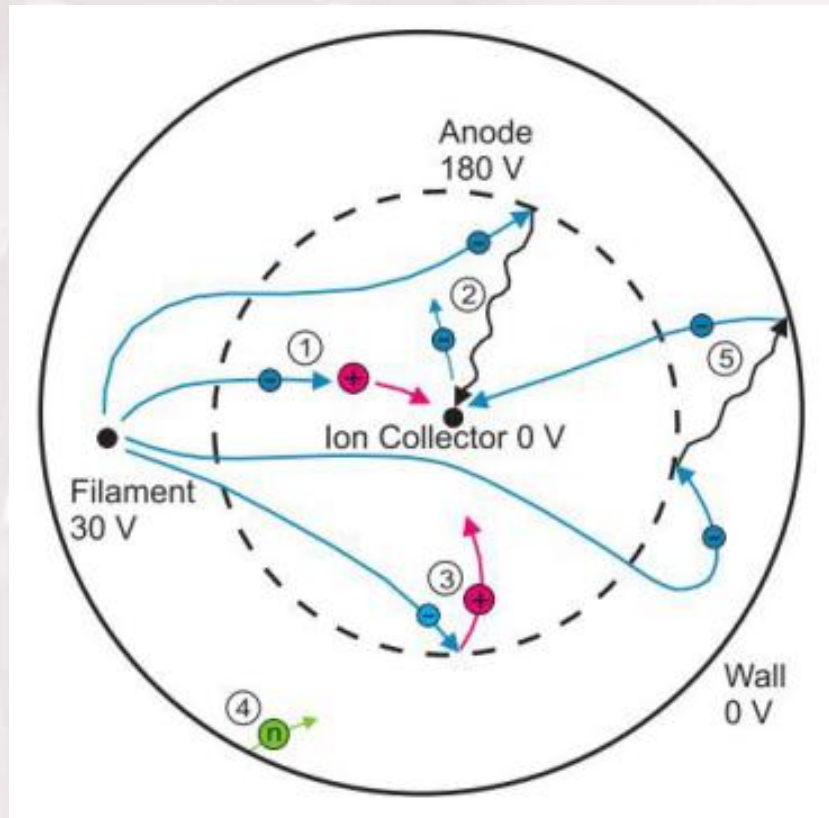


Measured VS22 as function of frequency; [Button BPM development for European XFEL, DESY]



Gauges available from atm down to  $<10^{-11}$  mbar

	$p_{\max}$ [mbar]	$p_{\min}$ [mbar]
Atmion	Atm	$1 \times 10^{-10}$
Barion	$4 \times 10^{-2}$	$2 \times 10^{-11}$
Barion XS	$5 \times 10^{-2}$	$5 \times 10^{-10}$
Barion XHV	$1 \times 10^{-2}$	$< 5 \times 10^{-12}$



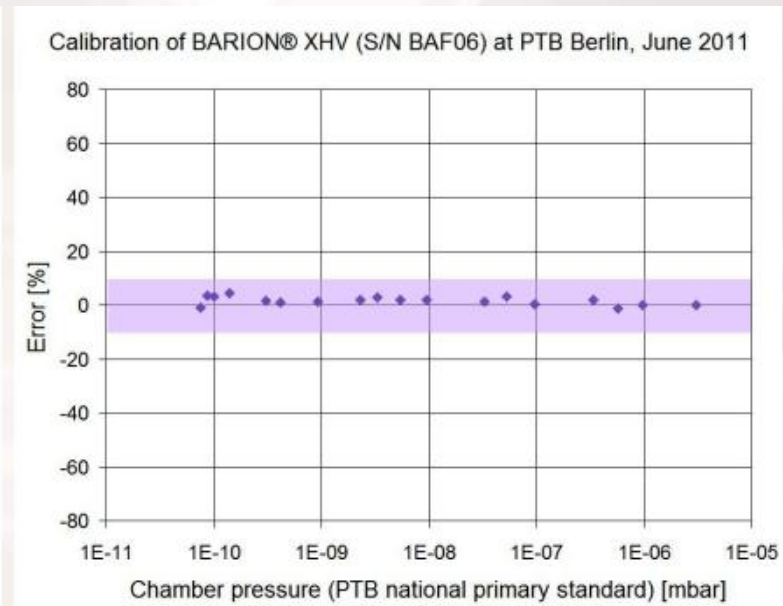
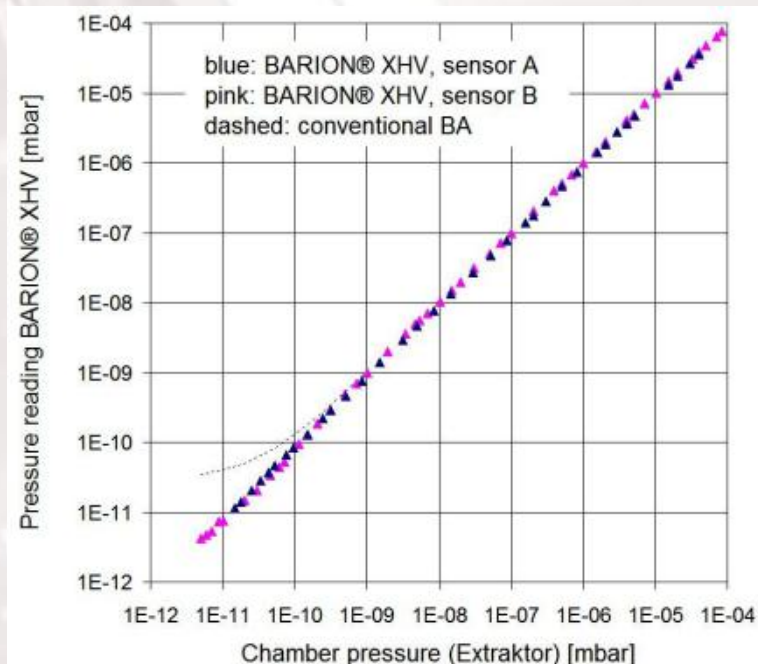
X-ray compensation  
Minimized ESD-  
effect  
Reduced outgassing

Improved accuracy in the  $1 \times 10^{-10}$  -  $1 \times 10^{-11}$  mbar range

Pressure measurement down to  $< 5 \times 10^{-12}$  mbar

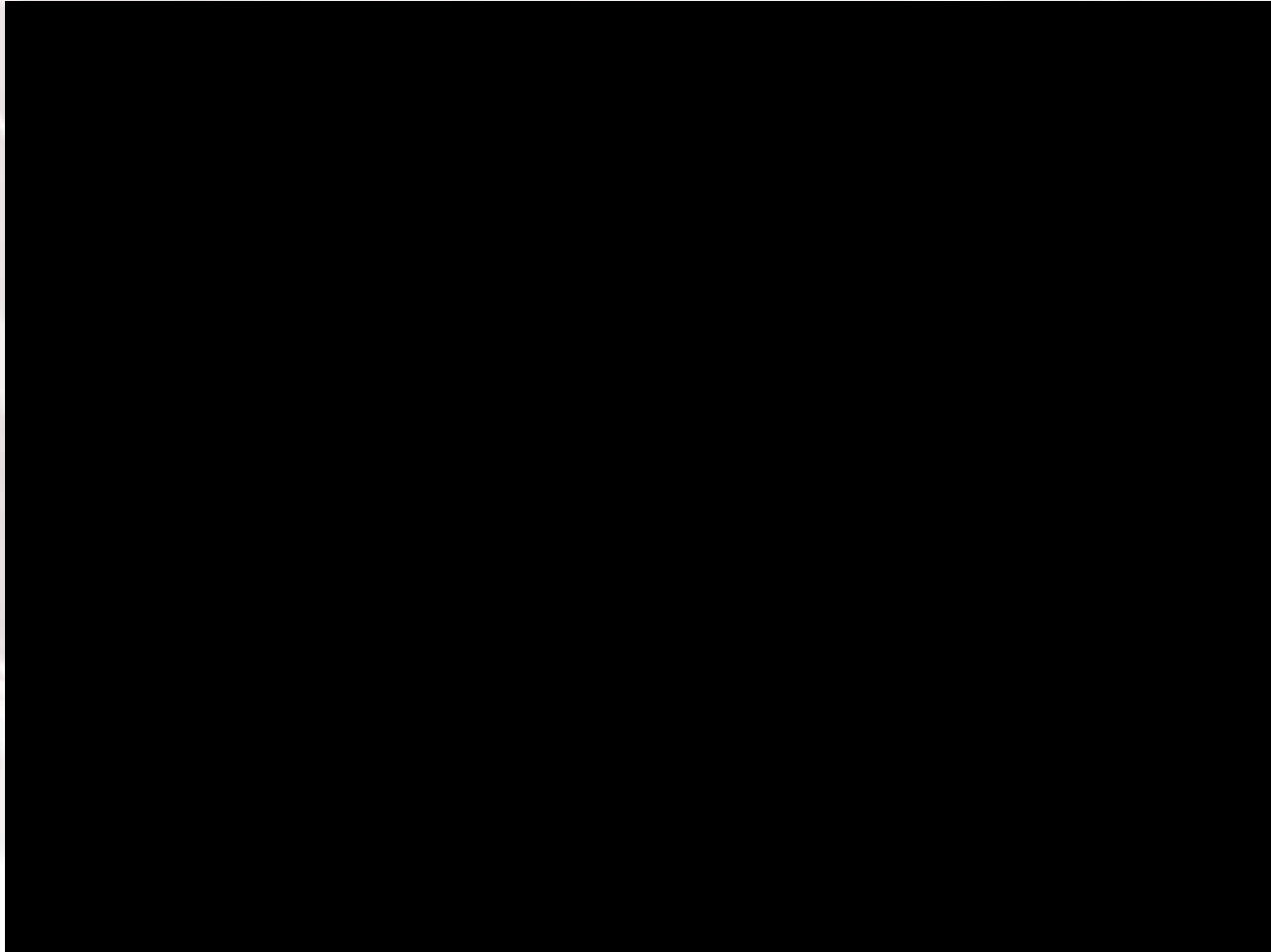
Upper limit  $1 \times 10^{-2}$  mbar

Low heat input (approx. 6 W)



No space? No time? VaCFix®!







- Applications where:
- space is limited
  - assembly time is critical, e.g. maintenance of accelerator
  - frequently changing parts or samples



# Any questions?

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