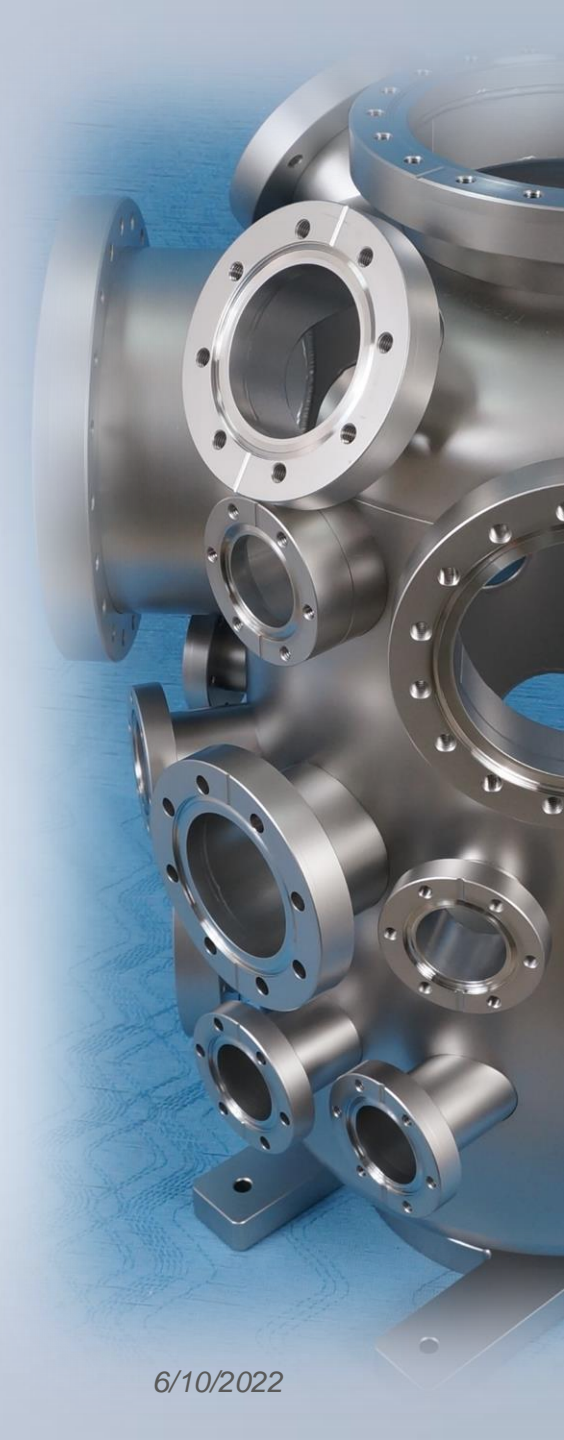





Your partner in vacuum technology

Company presentation and present challenges with the Big Science market

Marek RACHAČ
tech@vakuum.cz






FOUNDED
1993



LOCATION
Prague
Czechia



SERVICES

HV&UHV components
UHV systems for R&D
Vacuum systems for particle
accelerators



EMPLOYEES
30



DIRECTOR
Dr. Pavel
Hedbávný

Services

- We provide production of vacuum systems, including:
 - calculation, design and construction
 - CNC machining and welding
 - chemical cleaning and thermal vacuum processing
 - quality control of mechanical and vacuum parameters
- We supply vacuum systems and components to universities, research institutes and high-tech companies worldwide



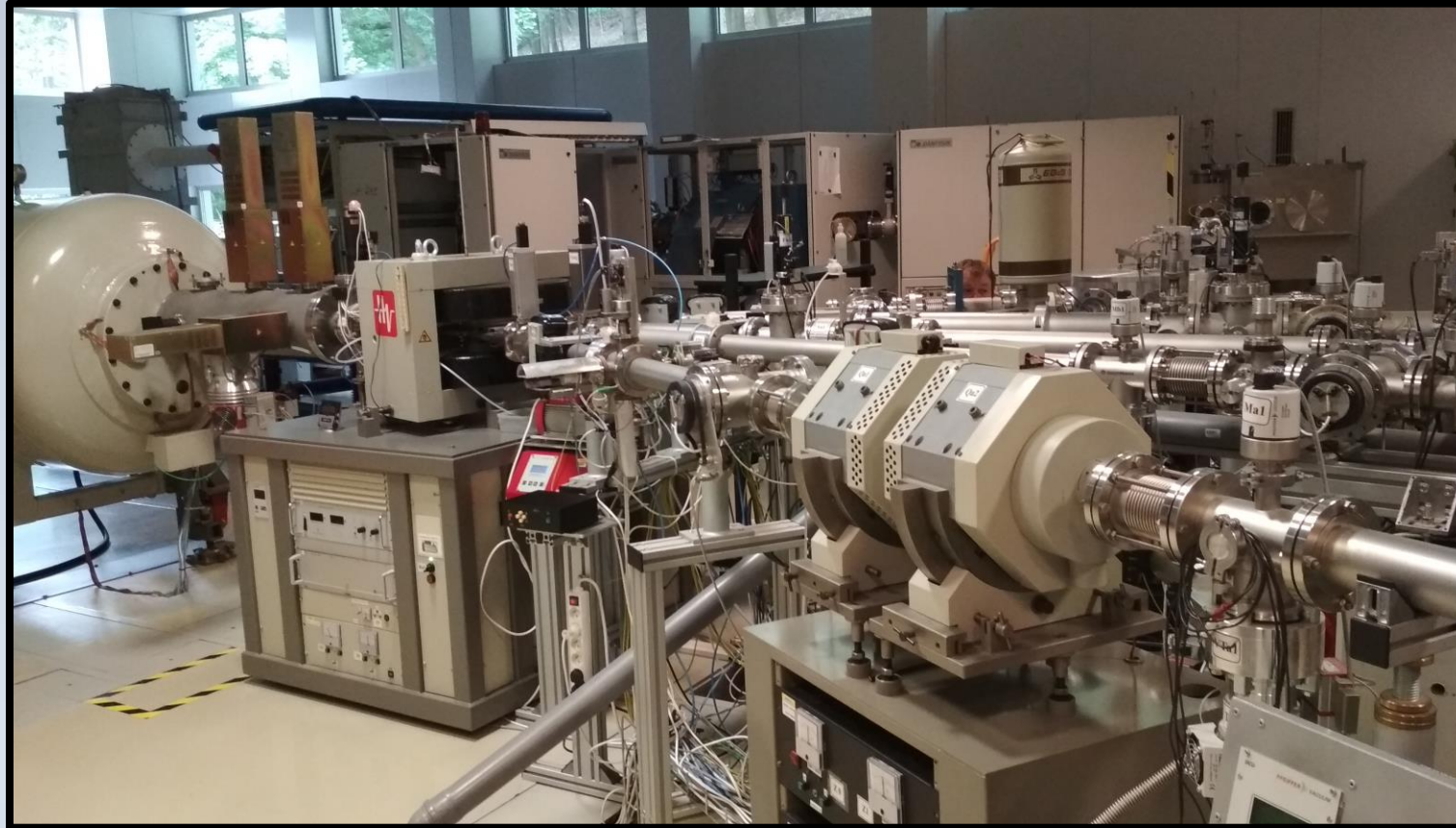
***Ultra-high vacuum chamber
for Jožef Stefan Institute***

References - our customers

- European Organization for Nuclear Research (CERN), Genève
- Joint Institute for Nuclear Research (JINR), Dubna *)
- ETH Zürich
- ELI BEAMLINES, Dolní Břežany
- Institute Jožef Stefan, Ljubljana
- TU Wien
- TU Mainz
- Uni Jena
- Uni Köln
- Fac. of Math. and Physics of Charles University, Praha
- Fac. of Sciences of Purkyně Univ., Ústí nad Labem
- Faculty of Sciences, University of South Bohemia, České Budějovice
- Institute of Physics of the Czech Academy of Sciences, Praha
- Nuclear Physics Institute of the Czech Academy of Sciences, Řež
- Ionplus, Dietikon
- Staib Instrumente, Langenbach
- Ferrovac, Zürich
- Scia Systems, Chemnitz
- Comvat, Haag
- Specs, Berlin
- Ion-Tof, Münster
- HVM Plasma, Praha
- Rigaku Innovative Technologies Europe, Praha
- Cameca, Gennevilliers
- Tectra, Frankfurt
- Thyracont, Passau
- Tescan, Brno

*) terminated in February 2022

Nuclear physics institute of Czech Academy of Sciences



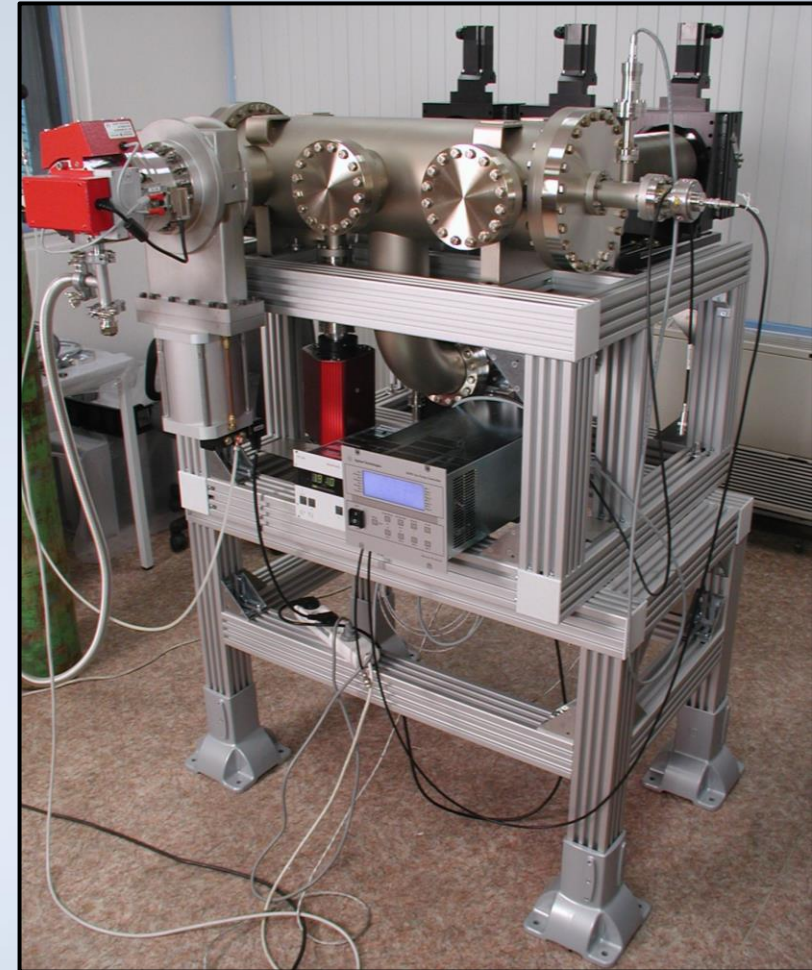
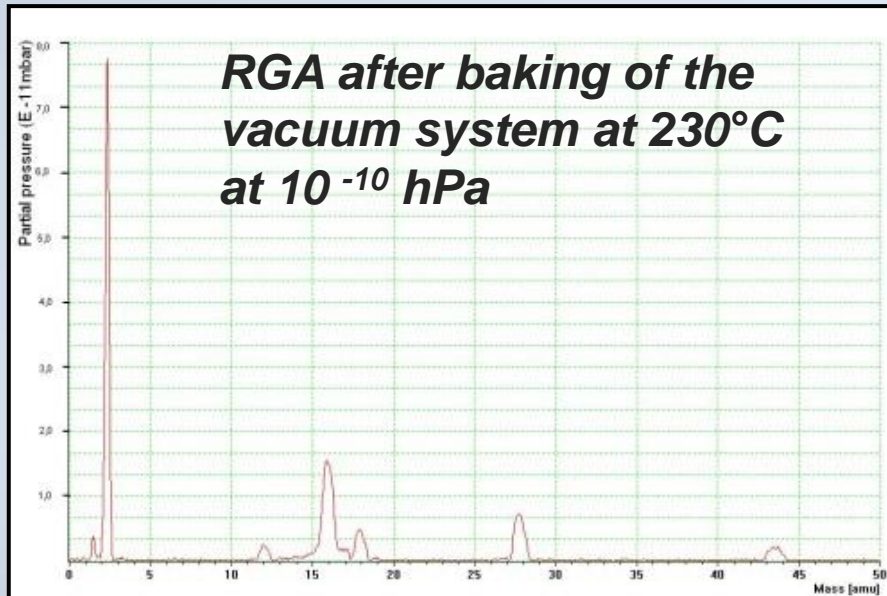
*Vacuum beam pipes and experimental chambers for synchrotron of
Nuclear Physics Institute of Czech Academy of Sciences*



DESY

The Deutsches Elektronen-Synchrotron

- MCP detector for the SASE XFEL systems
- 3 SASE systems produced and tested by our experts (2012, 2014)



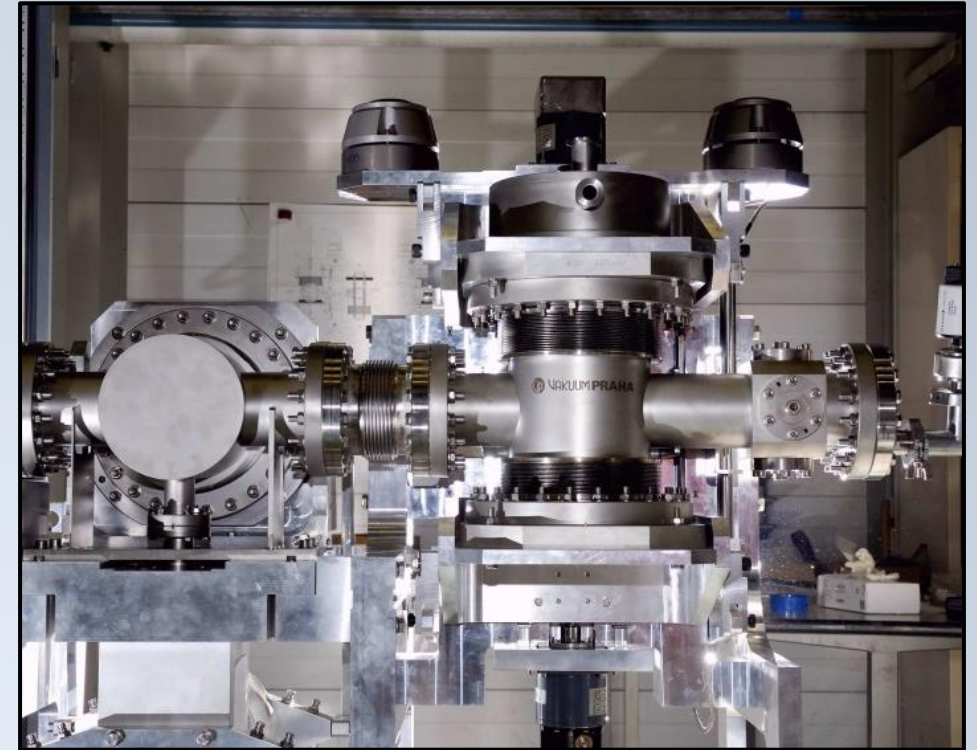
SASE XFEL system



CERN

CERN (Conseil Européen pour la Recherche Nucléaire), European largest accelerator facility for particle physics research

- 11 vacuum systems and 20 chambers for Forward Proton Detectors delivered to CERN in years 2006 – 2016
- Continuous deliveries of smaller vacuum components



VAKUUM PRAHA Vacuum system for forward proton detectors LHC, CERN



JINR

The Joint Institute for Nuclear Research, second largest European accelerator facility
Czech Republic – member of JINR till Dec. 31, 2022

VAKUUM PRAHA – most important Czech manufacturer of sophisticated UHV and XHV
systems for JINR

Approx. 450 orders for JINR were realized in VAKUUM PRAHA in years 1993 – 2021, e.g.:

- R&D project „Design, Assembly and Testing of the UHV Pumping System for NICA Booster“
- Injection Channel for Cyclotron DC-280
- Gas-filled separator for Cyclotron DC-280
- ToF Chamber
- Bellows insert for NICA



R&D project „Design, Assembly and Testing of the UHV Pumping System for NICA Booster“



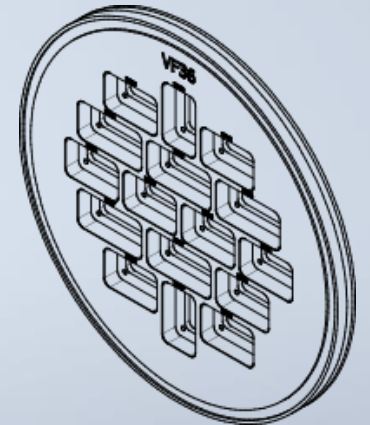
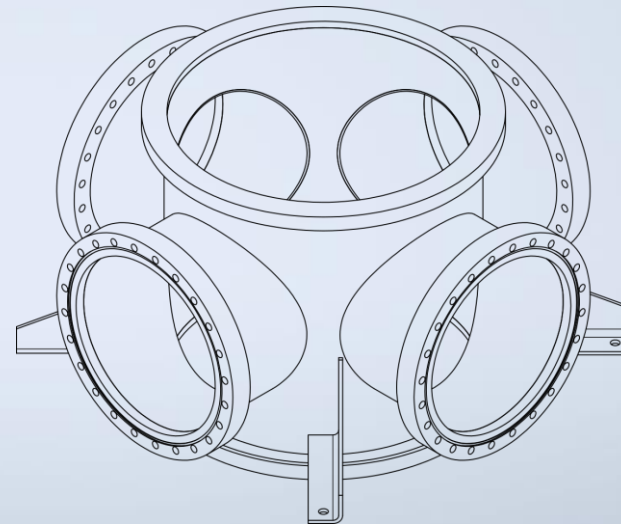
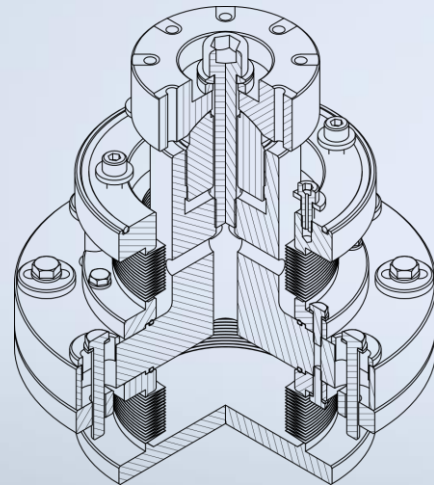
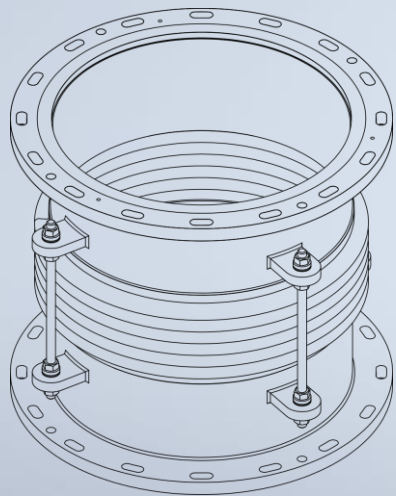
Pumping System for NICA Booster

ELI Beamlines

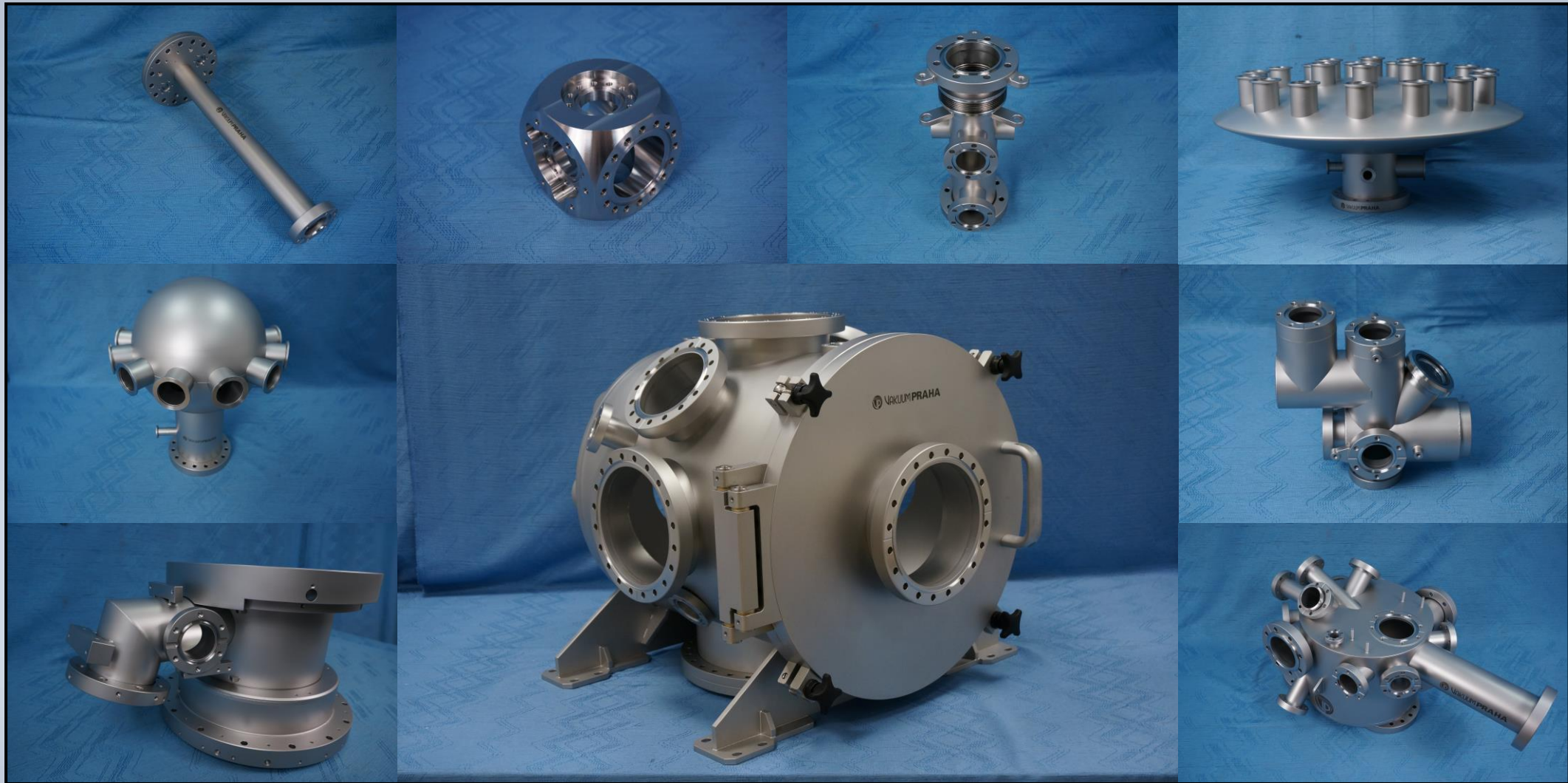
- The ELI Beamlines Facility is a leading laser research centre and part of ELI (Extreme Light Infrastructure) pan-European Research Infrastructure hosting the world's most intense lasers



- VAKUUM PRAHA supplies ELI with many vacuum chambers and components



Examples of UHV components and chambers



Current challenges

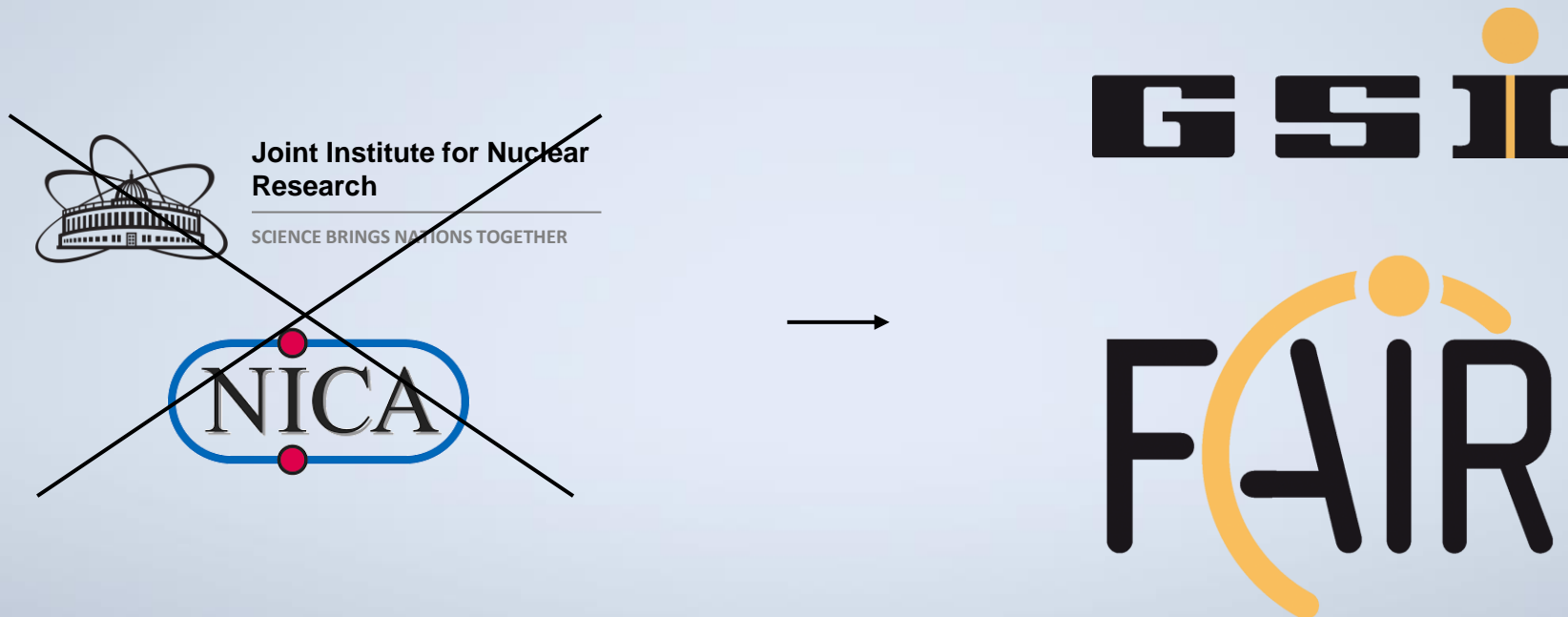
VAKUUM PRAHA meets following problems regarding big science business:

- Termination of cooperation with second largest European accelerator facility JINR in Dubna due to the conflict in Ukraine
- Rapidly changing material and energy price versus long term planning of big institutions (time validity of quotations)
- Administratively time-consuming drafting of tenders for large institutions

Current challenges

Due to Russian war there are lot of international projects interrupted and stopped as well as the international cooperation with russian federation on the field of Big Science.

It is necessary to look for new partnerships instead of Russian ones.



Thank you for your attention



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