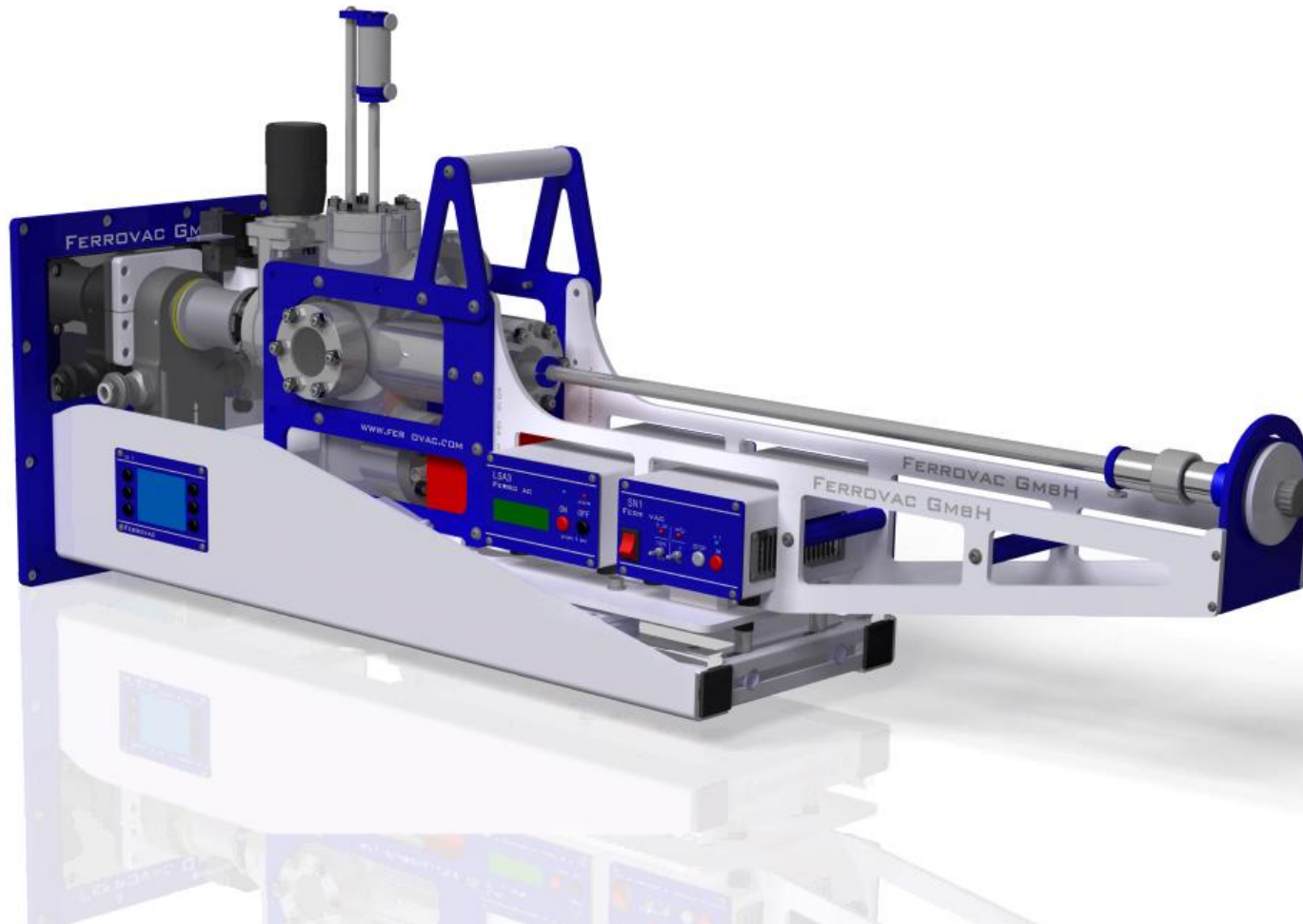
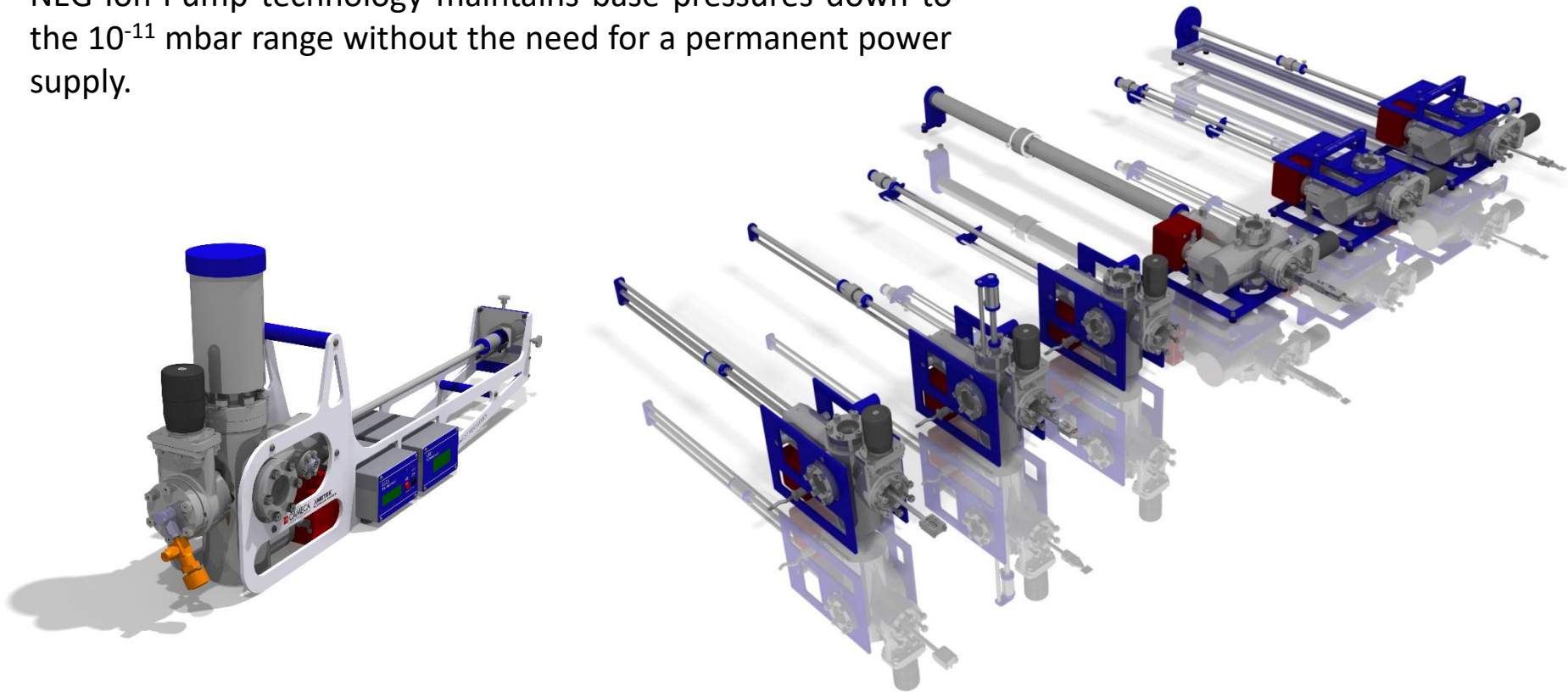


DOCKING SOLUTIONS FOR THERMO FISHER DUALBEAM™ SYSTEMS

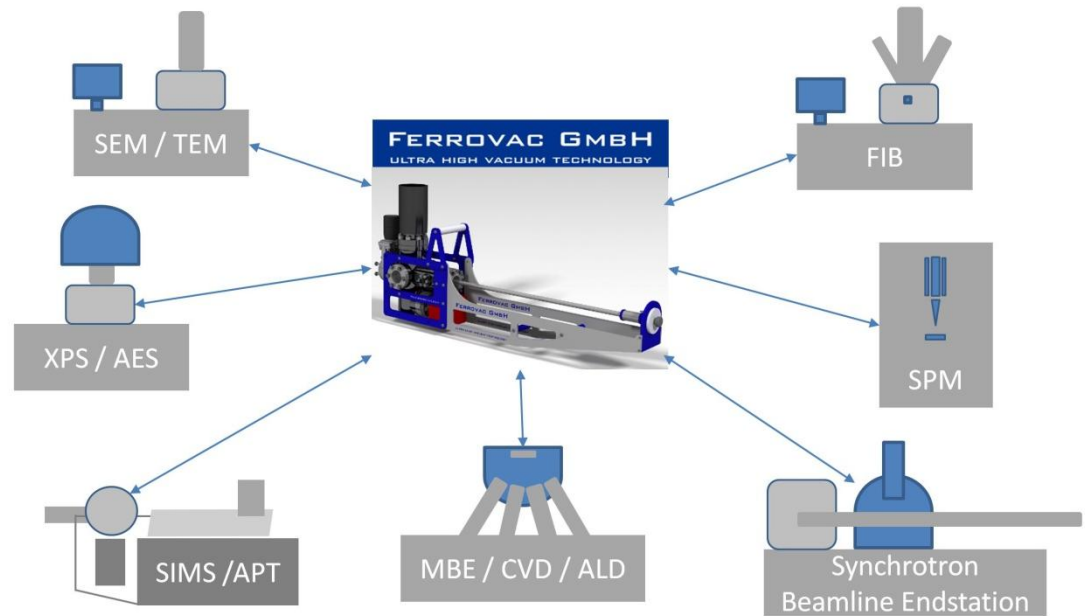


DOCKING SOLUTIONS FOR THERMO FISHER DUALBEAM™ SYSTEMS

Ferrovac produces and sells a full range of extremely compact UHV- and UHV-Cryo Transfer Modules (UHV(C)TM). Combined NEG-Ion-Pump technology maintains base pressures down to the 10^{-11} mbar range without the need for a permanent power supply.

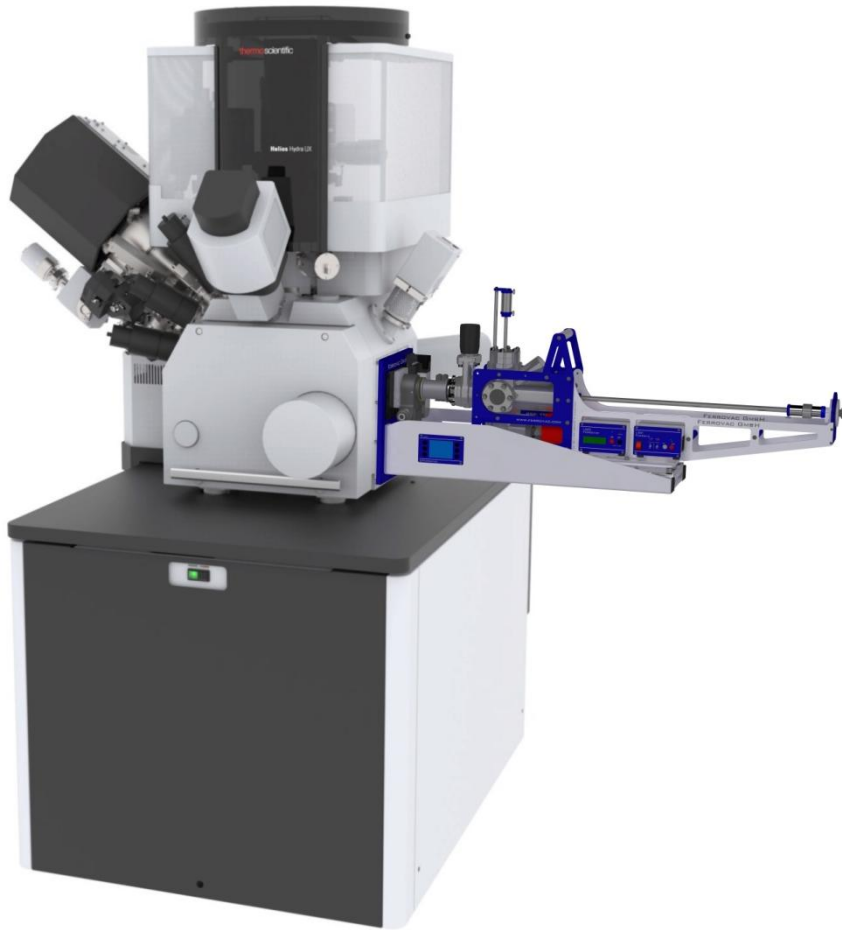


DOCKING SOLUTIONS FOR THERMO FISHER DUALBEAM™ SYSTEMS



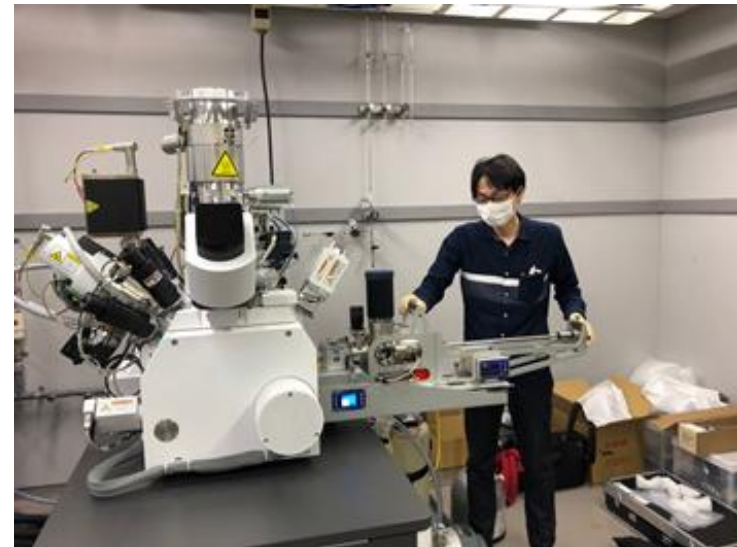
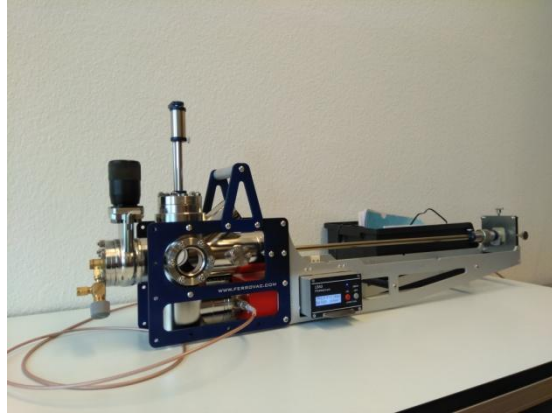
- Allows to transfer specimens under ultra-high vacuum and cryogenic conditions between independent instruments
- Lightweight, compact, portable system, ensuring UHV conditions at all times

DOCKING SOLUTIONS FOR THERMO FISHER DUALBEAM™ SYSTEMS



- Increased application space for the analysis of materials where specimens must be transported under cryo- and/or ultra-high vacuum conditions
This includes: biological materials, hydrogen-containing materials or surfaces prone to rapid oxidation
- Allows transfer of specimens under ultra-high vacuum and cryogenic conditions between different vacuum-controlled systems
- Direct docking to the standard L-port present on a majority of Thermo Fisher DualBeam™ Systems
- Vibration free operation, does not compromise the FIB imaging resolution
- The specimen loading sequence can be applied without software modification using an additional control logic interface

DOCKING SOLUTIONS FOR THERMO FISHER DUALBEAM™ SYSTEMS



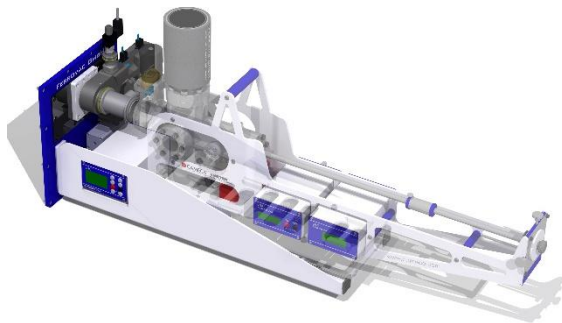
DOCKING SOLUTIONS FOR THERMO FISHER DUALBEAM™ SYSTEMS

The docking kit attaches to the L-port dedicated for 3rd party components of the DualBeam™ instrument. 3 different configurations are available:

Option 1: IAKTHFHELIOSDD Direct Docking Kit

A direct docking package UHVCTM to Helios, with no QuickLoader- i.e. attach the UHVCTM to the main chamber (Port L) and transfer the sample carrier directly from the UHVCTM, through the Port L onto the FIB-SEM stage. By adding a DN40KF transfer arm, this configuration can also be used as a simple load lock to quickly introduce samples without venting the entire Instrument.

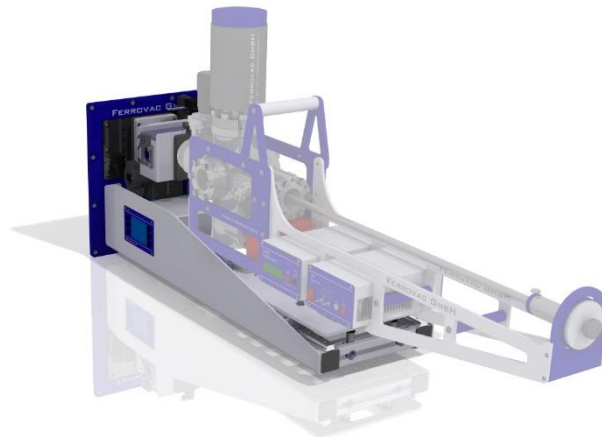
Choose this option if the end user wants to mainly transfer samples from the UHVCTM and only occasionally wants to load samples directly into the FIB-SEM.



Option 2: IAKTHFHELIOSFL Fast Loader Docking Kit

A docking package that entirely replaces the ThermoFisher QuickLoader™ to Ferrovac's combined loader/docking system. When the UHVCTM is detached, a normal transfer arm can be mounted, providing the same functionality as the original QuickLoader™.

This is the best option if the end user wants to use the dock for both, attaching a UHVCTM and to load samples by a normal transfer arm.

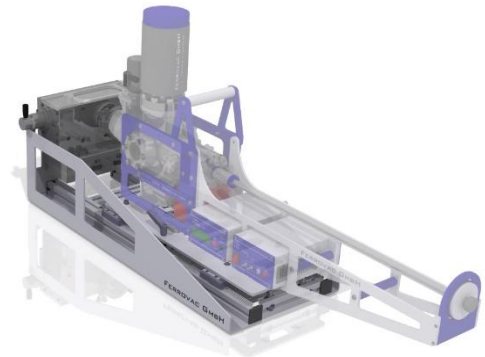


Option 3: IAKTHFHELIOSQL Docking Kit for the original QuickLoader™

An adaptation to the ThermoFisher QuickLoader™ - i.e. attach the UHVCTM to the QuickLoader™ chamber and transfer the sample carrier directly from the UHVCTM, through the QuickLoader™ chamber onto the FIB-SEM stage.

This is a possible option if the customer already has the original Thermo Fisher QuickLoader™ installed and wants to add docking of the UHVCTM.

CAUTION: This configuration greatly limits sample height and sample holder size due to the small diameter of the QuickLoader flange!



DOCKING SOLUTIONS FOR THERMO FISHER DUALBEAM™ SYSTEMS

Main features

Option 1: IAKTHFHELIOSDD Direct Docking Kit

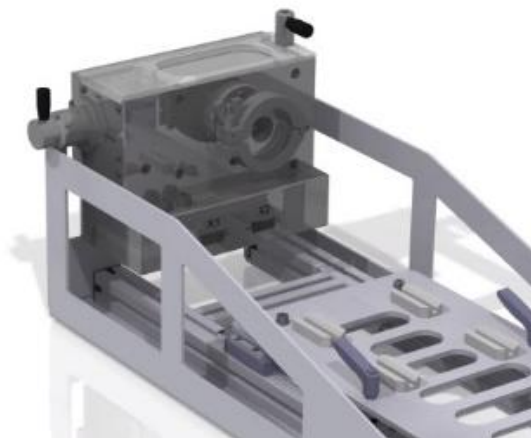
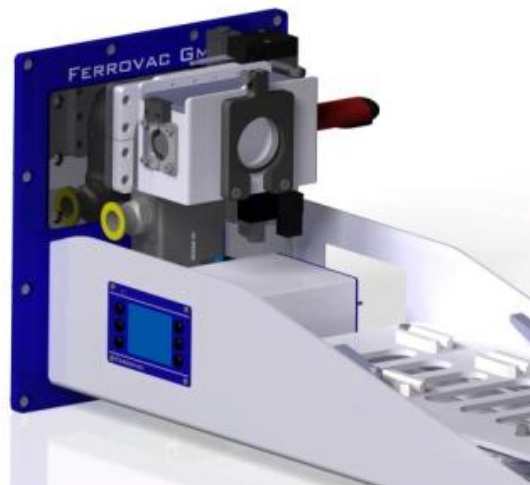
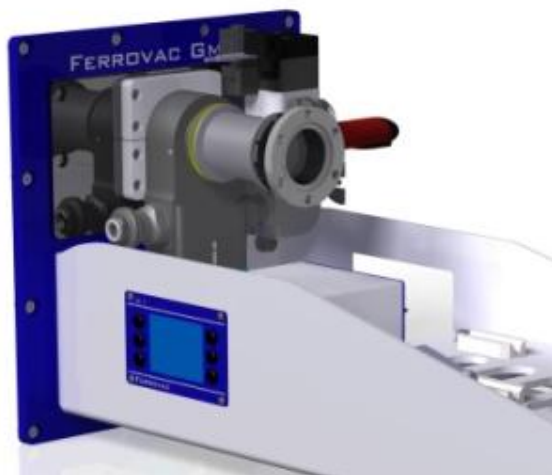
- Cost effective and simple
- Direct loading of samples: Yes, by means of an additional transfer arm
- Docking of UHVCTM: Yes
- Linear support sledge for UHVCTM: Yes
- Valve controller and interface: Yes
- Free inner diameter of transfer flanges: 38mm

Option 2: IAKTHFHELIOSFL Fast Loader Docking Kit

- Direct loading of samples: Yes, same functionality as the original QuickLoader™
- Docking of UHVCTM: Yes
- Linear support sledge for UHVCTM
- Valve controller and interface: Yes
- Free inner diameter of transfer flanges: 38mm

Option 3: IAKTHFHELIOSQL Docking Kit for the original QuickLoader™

- Direct loading of samples: Yes, using original QuickLoader™
- Docking of UHVCTM: Yes, through adapter flange
- Linear support sledge for UHVCTM: Yes
- Valve controller and interface: Yes
- Free inner diameter of transfer flanges: **23.7mm (limits sample size!)**



DOCKING SOLUTIONS FOR THERMO FISHER DUALBEAM™ SYSTEMS

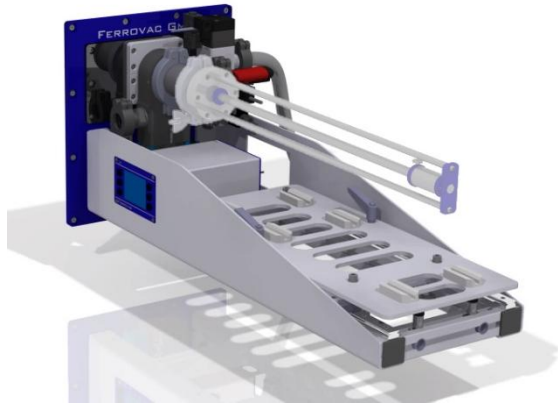
Option 1:

IAKTHFIHELIOSSD Kit includes:

- Mechanical support structure with linear sledge for UHVCTM
- KF40 quick docking port for UHVCTM
- L-Port adapter package
- Pneumatic gate valve
- Roughing line- and vent valves
- Pirani gauge
- LSC1 programmable valve controller and interface
- Transfer arm for direct sample loading to FIB-SEM
- Roughing line components

Optional:

- Roughing pump
- Transfer arm end effector for specific sample holder



Option 2:

IAKTHFIHELIOSSL Kit includes:

- Fast loading chamber with transparent top lid
- Mechanical support structure with linear sledge for UHVCTM
- KF40 quick docking port for UHVCTM
- L-Port adapter package
- Pneumatic gate valve
- Roughing line- and vent valves
- Pirani gauge
- LSC1 programmable valve controller and interface
- Transfer arm for direct sample loading to FIB-SEM
- Roughing line components

Optional:

- Roughing pump
- Transfer arm end effector for specific sample holder



Option 3

IAKTHFIHELIOSSL Kit includes:

- Mechanical support structure with linear sledge for UHVCTM
- KF40 quick docking port for UHVCTM
- Transfer arm KF40 for direct sample loading to FIB-SEM

Optional:

- Transfer arm end effector for specific sample holder



DOCKING SOLUTIONS FOR THERMO FISHER DUALBEAM™ SYSTEMS

Further Information:

Visit our website or contact sales@ferrovac.com for detailed quotes and individual configurations.

Zurich, January 28th 2021