VACGEN

www.vacgen.com

PRODUCT OVERVIEW

Drives & Motion

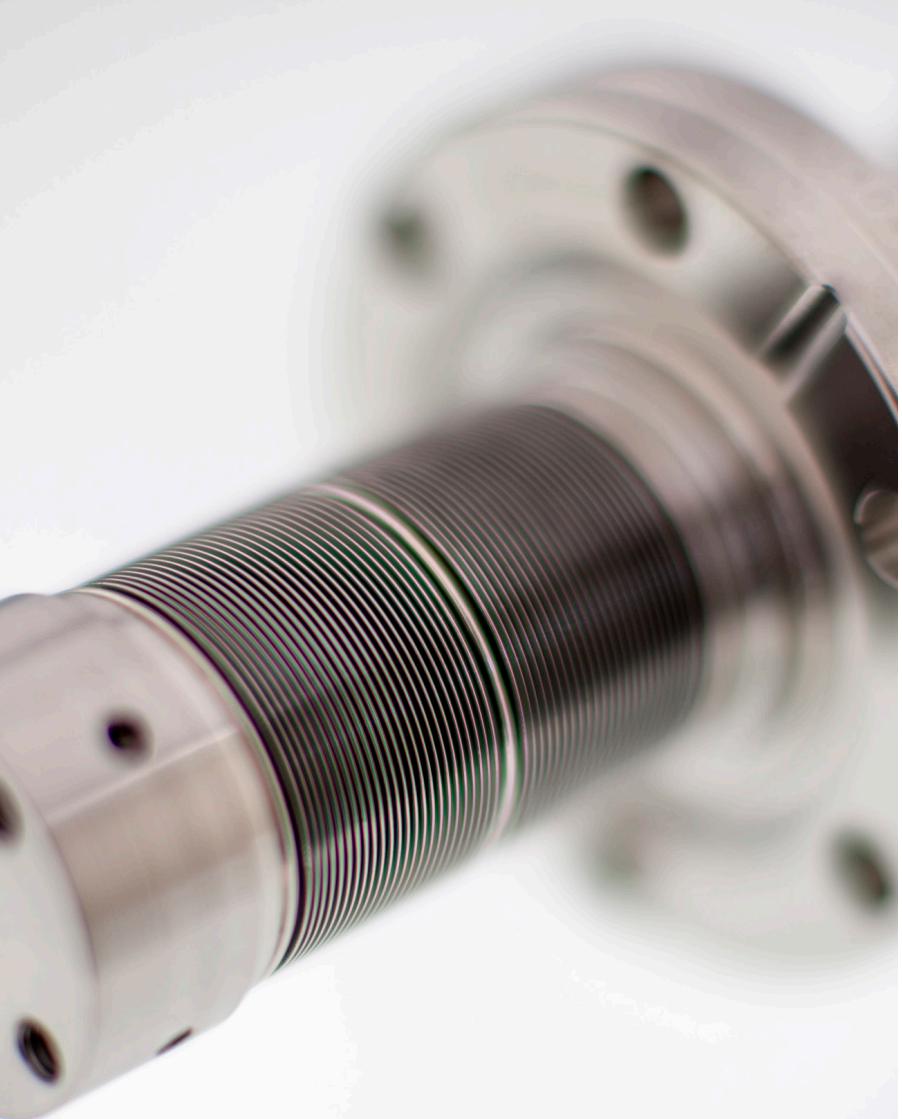
PRODUCT OVERVIEW

UHV Drives & Motion

Engineered Solutions for Vacuum Technology.

Many vacuum processes require a sample or other components to be moved around the vacuum system. We offer a comprehensive range of rotation and linear motion components, including ultra-high vacuum linear drives, wobble sticks and transfer devices.

VACGEN are an ISO9001:2015 Certified Quality Management System supplier and have over 50 years experience in supplying ultra-high vacuum drives & motion devices to industry.



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About Us

Since 1964, VACGEN (VG) has been the name synonymous with high quality ultra high vacuum products and services. From the manufacture of the first UHV valve to some of the most advanced vacuum research systems built, over 50 years in the research and scientific industry has given us an incredible grounding in the needs of our customers, how we can support new projects through the design phase, delivered product and ongoing support.

VACGEN remains the partner of choice for the next generation of researchers, innovators and builders. From our UK high tech manufacturing base, our focus is on delivering enabling technologies and supporting our customers across industry and academia.

UKAS and BSI ISO 9001:2015 Certified.

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Drives & Motion Overview

Vacuum drives and motion devices encompass a wide variety of scientific instruments which provide rotation, linear and angular movements. A vacuum system requires a range of different components to move and manipulate a sample or substrate whilst under vacuum.

Linear Drives

Rotary Drives

Wobble Sticks

Components such as magnetic and non-magnetic transfer devices facilitate long travel distances within the vacuum system. Whilst rotary platforms provide a means of rotating external instrumentation such as a cryostat or cold finger.

Magnetic Transfer

Non-Magnetic Transfer

Rotary Platforms

Rotary Drives

Rotary drives are used where a vacuum process requires a sample or components to be accurately rotated within the vacuum chamber. This can range from something as simple as spinning an attenuating chopper wheel, to accurately moving a sample to face from one analyser to another.

Primary Rotary Drive

Primary & Azimuthal Rotary Drive

Mini Rotary Drive

SPECIFICATION

Rotary Drives

Primary & Azimuthal Options

360° Continous Rotation

Up to ±180° Azimuthal Travel

Customisable Shaft Length

Fully UHV Compatible

70mm OD CF Flange - RD1, RD2 & RD6

34mm OD CF Flange - RD91, RD93 & RD94

Leak Rate $<1x10^{-10}$ mbar ls^{-1}

Fully Bakeable up to 250°C

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Linear Drives

Linear Drives can be used for a range of applications requiring small distance travel such as moving electron optics nearer to a loaded sample. Our product range of ultra-high vacuum linear drives utilise high quality edge-welded bellows and have a linear motion range from 25mm to 150mm.

Precision Linear Drive

Push-Pull Linear Drive

Pneumatic Linear Drive

SPECIFICATION

Linear Drives

Travel Ranges 25-150mm

Manual, Stepper Motor & Pneumatic Options

High Precision Mitutoya Micrometers Option

Resolution & Repeatibility <5µm

34mm OD Flange with 9mm Shaft

70mm OD Flange with 33mm Travelling Mount

Leak Rate $<1x10^{-10}$ mbar ls^{-1}

Fully Bakeable up to 250°C

Hollow Linear Drives

Linear Transfer Mechanisms (LTM) can be used for a range of applications such as inserting a plasma diagnostic probe with high level of accuracy into the chamber. Our product range of ultra-high vacuum linear drives utilise high quality edge-welded bellows and have a linear motion range from 25mm to 600mm.

Linear Transfer Mechanism

Widebore Linear Transfer

Long Stroke Linear Transfer

SPECIFICATION

Hollow Linear Drives

Travel Ranges 25-600mm

Manual, Stepper Motor & DC Motor Options

Resolution & Repeatability <2.5µm

33mm, 38mm & 68mm Clear Bore Options

Maximum Axial Load 30Kg

Graduated Index Scale 1mm Increments

Leak Rate $<1x10^{-10}$ mbar ls^{-1}

Fully Bakeable up to 250°C

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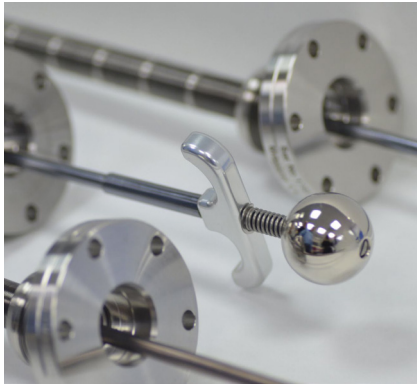
Wobble Sticks

Ideally located at all interchange points in the vacuum system, where a sample must be transferred for example, between a transport device and a sample holder. Wobble sticks can also be used as actuators to operate mechanisms inside the vacuum system, for example probe adjustment, variable orifices or apertures.



Flag Style Wobble Stick

Mechanical Hand

Hollow Wobble Stick

SPECIFICATION

Wobble Sticks

70mm OD CF Flange

Travel Ranges 80-280mm

±22.5° Angular Travel

18mm Flag, Plain, Inline & Perpendicular Jaws

Hollow Option Available

Leak Rate <$1x10^{-10}$ mbar ls^{-1}

Fully Bakeable up to 250°C

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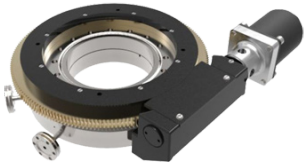
Rotary Platforms

Rotary platforms provide a means of translation into the vacuum vessel without compromising on vacuum integrity. Differentially pumped rotary feedthroughs (DPRF) are designed to enable a cryostat, cold finger or other instrumentation to be inserted into a UHV environment and rotated without the services becoming entangled.

Manual Differentially Pumped Rotary Feedthrough

High Precision Differentially Pumped Rotary Feedthrough



Widebore Rotary Platform

SPECIFICATION

Rotary Platforms

Single & Dual Stage Pumping Ports

34mm OD CF Ports

Manual, High Precision & Motorised Versions

25mm, 55mm & 100mm Clear Bores

High Load Capacity >80Kg

Leak Rate $<1x10^{-10}$ mbar ls^{-1}

Fully Bakeable up to 230°C

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Transfer Devices

UHV transfer devices are designed to transport a sample or instrumentation over long travel distances. Depending on application you may want to choose a magnetically coupled transfer device, a non-magnetic rack & pinion transfer device or a bi-directional.

Magnetic Transfer

Non-Magnetic Transfer

Bi-Directional Transfer

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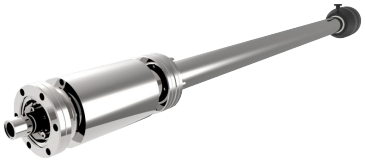
Magnetic Transfer

The magnetically coupled transfer devices are designed for high power, smooth transfer and fitted with Samarium Cobalt magnets. The MLD and MLRD range contain an additional bearing housing for high accuracy and high repeatability.

Standard Linear & Rotary Transfer



High Precision Linear Only

High Precision Linear & Rotary Transfer

SPECIFICATION

Magnetic Transfer

Dual Axis Linear & Rotary Motion

High Precision & Standard Options

Samarium Cobalt Magnets

High Power Axial Thrust 25N

<1mm Sample Deflection with High Precision

70mm & 114mm OD CF Mounting Flange

Travel Ranges 305-1450mm

Continuous 360° Rotation

Leak Rate <$1x10^{-10}$ mbar ls^{-1}

Fully Bakeable up to 250°C

Non-Magnetic Transfer

The rack and pinion design provides an accurate means of linear and rotary motion into the vacuum chamber. These devices are magnet free and designed for applications requiring low magnetic permeability.

High Precision Linear Only

High Precision Linear & Rotary Transfer

SPECIFICATION

Non-Mag Transfer

Dual Axis Linear & Rotary Motion

High Precision 1° Resolution

Controlled via Rotary Drives for Extreme Accuracy

<1mm Sample Deflection

70mm OD CF Mounting Flange

Travel Ranges 305-914mm

Continuous 360° Rotation

Leak Rate <$1x10^{-10}$ mbar ls^{-1}

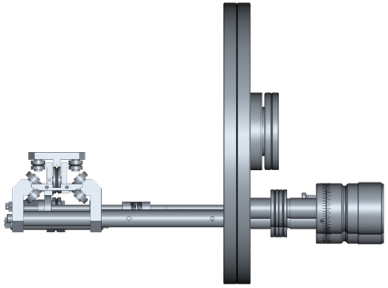
Fully Bakeable up to 250°C

Bi-Directional Transfer

When space is at a premium on the exterior of the chambers, a transfer device such as a bi-directional transfer arm can be the best solution. Designed with a heavy duty rack and pinion, the transfer device will pass through a 64mm gate valve and is ideally situated between two adjoining chambers.

Bi-Directional

Operated with Rotary Drives



Bi-Directional with Carrier

SPECIFICATION

Bi-Directional

Positioning Repeatable to ±1mm

Customised Transfer Tools

10” Mounting Flange

Chamber Design to Suit Transfer

Controlled via Rotary Drives for Extreme Accuracy

UHV Compatible

Leak Rate <$1x10^{-10}$ mbar ls^{-1}

Fully Bakeable up to 250°C

Bi-Directional transfer is used to deliver a sample or substrate from chamber to chamber without breaking vacuum.

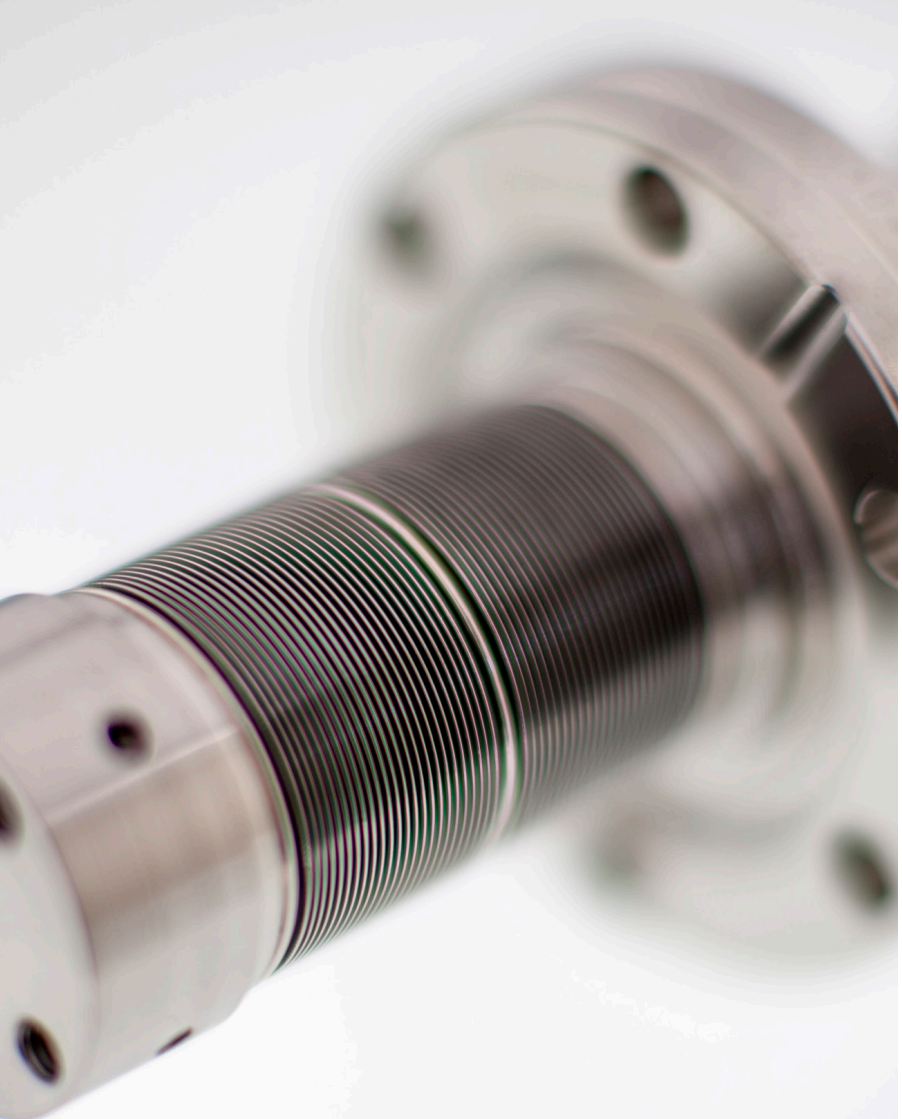
The Value of Partnership

In a high technology business, you have to be confident in the partners you choose to provide mission critical technology, equipment and services. You need to know that your partners can deliver and support what you need, when you need it. As your business grows and develops your need to work with partners that can support that growth. That's where we come in.

We're a fully-fledged UHV equipment manufacturer. At our factory in the UK we exploit extensive engineering resources to take raw materials right through the entire manufacturing workflow, producing finished UHV components, everything happens here.

Our in house design and development functions are world class, and production is supported by extensive CNC machining resources feeding a large clean room assembly area. We can react quickly with significant resources as needed. We take pride in being an agile responsive business.

Owning our product lifecycle ensures unparalleled control of quality, and gives us a deep understanding of each and every one of our products, from the simplest component through to the most complex assembly. We understand how they perform and interact across a host of applications and within numerous environments.



Contact Us

VACGEN LTD

Unit A, Swallow Business Park
Diamond Drive
Lower Dicker
Hailsham
East Sussex
BN27 4EL

Website: www.vacgen.com

General Enquiries: sales@vacgen.com

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