

UHV and High Vacuum Valves



8.1 UHV AND HIGH VACUUM GATE VALVES

-> Page 8.2

- UHV and High Vacuum Gate Valves - Manual
- UHV and High Vacuum Gate Valves - Pneumatic with Position Indicator
- UHV and High Vacuum Gate Valves - Spare Gasket Sets
- High Vacuum Rectangular Gate Valves - Pneumatic with Position Indicator



8.2 UHV AND HIGH VACUUM RIGHT ANGLE VALVES -> Page 8.4

- SMC Valves, Right Angle - Manual
- SMC Valves, Right Angle - Pneumatic
- CF UHV Right Angle Valves - Stainless Steel - Manual
- CF UHV Right Angle Valves - Stainless Steel - Pneumatic



8.3 ALL METAL VALVES

-> Page 8.5

- UHV All metal Valves - Manual Right Angle
- UHV Miniature Leak Valve
- UHV Precision Leak Valve



- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

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UHV and High Vacuum Gate Valves - Manual

Pneumatic with Position Indicator

As Distribution partner of HVA, Allectra offers a full range of Gate Valves for HV and UHV applications.

More than 30 years of experience make HVA valves to one of the leading valve manufacturers over the world.

- Manual and Electro-pneumatic versions
- Edge Welded Bellows plate movement
- Spare parts and In House Service
- 1 Million Cycles as option



Specification Gate Valves - Manual

Sizes	DN16CF - DN350CF DN16KF - DN600ISO
Material	Stainless Steel
Max. Temperature	open 200°C closed 150°C
Bellows	Edge Welded
Gasket Gate	Viton
Bonnet seal	Metal (UHV) / Viton (HV)
Vacuum	<2*10 ⁻¹⁰ mbar l/s
Orientation	any
Cycles	100.000 to first service

For full dimensional information please ask the Sales Office for the Gate Valve Data Sheet

Specification Gate Valves - Pneumatic

Air Cylinder	Aluminium-cylinder
Air Pressure	4.8 - 6.9 bar adjustable closure speed
Solenoid	24V DC Standard
Position Indicator	REED, 28V max. 20 mA



UHV and High Vacuum Gate Valves MANUAL

FLANGE	THICKNESS	PART NUMBER
16CF	39,6	515-GV-C16
40CF	51,6	515-GV-C40
63CF	61,2	515-GV-C63
100CF	75,4	515-GV-C100
160CF	80,5	515-GV-C160
200CF	85,0	515-GV-C200
250CF	92,8	515-GV-C250
16KF	75,2	515-GV-K16
40KF	50,7	515-GV-K40
50KF	50,7	515-GV-K50
63-ISO	51,4	515-GV-ISO63
100-ISO	61,2	515-GV-ISO100
160-ISO	59,9	515-GV-ISO160
200-ISO	67,4	515-GV-ISO200
250-ISO	80,1	515-GV-ISO250

UHV and High Vacuum Gate Valves PNEUMATIC WITH POSITION INDICATOR

FLANGE	THICKNESS	PART NUMBER
16CF	39,6	515-GV-C16-P
40CF	51,6	515-GV-C40-P
63CF	61,2	515-GV-C63-P
100CF	75,4	515-GV-C100-P
160CF	80,5	515-GV-C160-P
200CF	85,0	515-GV-C200-P
250CF	92,8	515-GV-C250-P
16KF	75,2	515-GV-K16-P
40KF	50,7	515-GV-K40-P
50KF	50,7	515-GV-K50-P
63-ISO	51,4	515-GV-ISO63-P
100-ISO	61,2	515-GV-ISO100-P
160-ISO	59,9	515-GV-ISO160-P
200-ISO	67,4	515-GV-ISO200-P
250-ISO	80,1	515-GV-ISO250-P

From left to right:
 - 515-GV-C100, manual
 - 511-GV-C160-P, pneumatic
 - 511-GV-C200, manual

UHV and High Vacuum Gate Valves - Spare Gasket-Sets

Rectangular Pneumatic Gate Valves

Allectra Gate Valves are designed for convenient user servicing. The valve mechanism can be removed leaving the body in the vacuum system. All constructional bolts are metric. Spares are readily available.



Specification for UHV/ HV Gate Valves Spare Gasket Sets

Gaskets	Replacement Gasket Sets include two Gaskets (UHV: Viton + Metal)
Spare Parts	A full range of Spare Parts including bellows and pneumatic cylinders are available on request.



Spare Gate Valve Gasket set

UHV CF Gate Valves SPARE GASKET SETS (1Viton, 1 Metal)

FLANGE	GASKETS	PART NUMBER
16CF	2	515-GVG-C16
40CF	2	515-GVG-C40
63ICF	2	515-GVG-C63
100CF	2	515-GVG-C100
160CF	2	515-GVG-C160
200CF	2	515-GVG-C200
250CF	2	515-GVG-C250

HV KF/ISO Gate Valves SPARE GASKET SETS (2xViton)

FLANGE	GASKETS	PART NUMBER
16KF	2	515-GVG-K16
40KF	2	515-GVG-K40
50KF	2	515-GVG-K50
63ISO	2	515-GVG-ISO63
100ISO	2	515-GVG-ISO100
160ISO	2	515-GVG-ISO160
200ISO	2	515-GVG-ISO200
250ISO	2	515-GVG-ISO250

Specification for Rectangular Gate Valves

Vacuum	HV 10 ⁻⁹ mbar
Bakeout	150°C open and closed (Sensor 60°C max)
Air cylinder	Aluminium-cylinder
Air Pressure	4.8 – 6.9 bar adjustable closure speed
Solonoid	24V DC Standard
Position Indicator	REED, 28V max. 20mA
First service	1.000.000 cycles

High Vacuum Rectangular Gate Valves PNEUMATIC WITH POSITION INDICATOR

APERTURE	THICKNESS	PART NUMBER
32 X 220	60	515-RAGV-32x220
33 X 332	60	515-RAGV-33x332
46 X 223	60	515-RAGV-46x223
50 X 336	60	515-RAGV-50x336

For full dimensional information on the Rectangular Gate Valves, please ask Sales Office for the Data Sheet

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
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Viton Sealed Right Angle Valves -SMC-

Allectra represents the high quality SMC pneumatic and manual angle valve. With a standard lifetime of 2.000.000 cycles they are suitable for demanding applications also in industrial applications. Here are only listed the basic versions, many options are available:

- Manual and Pneumatic versions
- CF versions with SS body
- Normally open pneumatic valves
- 2-Step control with bypass (to avoid turbulences)

Please ask for the full SMC catalogue!



Specification SMC Right Angle - Aluminium Manual + Pneumatic

Size	16/ 25/ 40/50/ 63KF, ISO-K63
Seal	Viton
Leak rate	<1x10 ⁻⁹ mbar l /s
Bake Temp.	60°C / 150°C as option
Port Length	(symmetric) from port to centre axis
16KF	40 mm
25KF	50 mm
40KF	65 mm
50KF	70 mm
ISO-K	88 mm
Lifetime	100.000 manual/ 2 Mio pneum.

Pneumatic valves need an air pressure of 4 -7 bar. A solenoid valve 24V DC is included as standard. Valves listed here are normally closed.

High Vacuum Right Angle Valves Aluminium - MANUAL

FLANGE	SEAL	PART NUMBER
16KF	VITON	518-AV-K16-V-ALU
25KF	VITON	518-AV-K25-V-ALU
40KF	VITON	518-AV-K40-V-ALU
50KF	VITON	518-AV-K50-V-ALU

High Vacuum Right Angle Valves Aluminium - PNEUMATIC

FLANGE	SEAL	PART NUMBER
16KF	VITON	518-AVP-K16-V-24V
25KF	VITON	518-AVP-K25-V-24V
40KF	VITON	518-AVP-K40-V-24V
50KF	VITON	518-AVP-K50-V-24V
ISO-K63	VITON	518-AVP-ISO63-V-24V

Specification for Right Angle Valves - Stainless Steel CF flanges, Manual + Pneumatic

Size	16CF / 40CF / 63CF
Seal	Viton
Leak rate	<10 ⁻⁹ mbar l /s
Bakeout temp	150°C closed
Port Length	(symmetric) from port to centre axis
16CF	40mm
40CF	65mm
63CF	105mm

Please ask the Sales Office for a full catalogue of the SMC valves!
 Inline Valves are available as well.

UHV Right Angle Valves Stainless Steel MANUAL

FLANGE	SEAL	PART NUMBER
16CF	VITON	511-AV-C16-V
40CF	VITON	511-AV-C40-V
63CF	VITON	511-AV-C63-V

UHV Right Angle Valves Stainless Steel PNEUMATIC

FLANGE	SEAL	PART NUMBER
16CF	VITON	511-AVP-C16-V
40CF	VITON	511-AVP-C40-V
63CF	VITON	511-AVP-C63-V



Sub-D
1
CM + DIL
F/T
2
Coax
F/T
3
Power
High Voltage
4
Thermo-
couple
5
Cables
Accessories
6
Viewports
Fiberoptic
7
Valves
8
Motion
Manipulation
9
Process
Control
10
CF
Hardware
11
KF
Hardware
12
ISO-K
Hardware
13
Adaptors
Specials
14
HV / UHV
Chambers
15
Atlas
Bi-Metal
16

All Metal Valves - Manual Right Angle

All Metal Right Angle valves are designed and specially built for Allectra by a major UHV valve company. They are suitable for ultimate UHV service.

- Copper Gasket to Stainless Steel knife edge seal
- With two rotatable through hole flanges
- Bakeable to 450°C
- Stainless Steel construction with a replaceable Copper sealing pad.



Specification All Metal Valves

Vacuum	UHV (10^{-12} mbar to atmosphere)
Leak rate	$< 10^{-11}$ mbar l/s
Material	SS and Copper
Max. Temp.	450°C open 300°C closed
Port length from valve axis	16CF 38 mm 40CF 63 mm
Sealing Pad	Cu- replaceable through side port
Conductance	16CF 5 l/s 40CF 34 l/s

**UHV All metal Valves
MANUAL RIGHT ANGLE**

FLANGE	TUBE	PART NUMBER
-	19.1	512-AMV16
16CF	19.1	512-AMV16-C16
-	41.3	512-AMV40
40CF	41.3	512-AMV40-C40

**UHV All metal Valves
Replacement Copper Pads**

FLANGE	SEAL	PART NUMBER
16CF	Cu	512-AMV16-PAD
40CF	Cu	512-AMV40-PAD

Closure Torque

All metal Right Angle Valves are provided with a closure mark. They can be closed by aligning the indicator marks on the body and the top nut. Alternatively they can be shut with a torque wrench. The torque required is as below:

512-AMV16	2.4 to 3.7 Nm
512-AMV40	7.7 to 12.1 Nm

For full dimensional details, please ask Sales Office for the All Metal Valve Data Sheet



512-AMV40-C40

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
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UHV Miniature Leak Valve

UHV Precision Leak Valve

Allectra offers two types of UHV leak valves. Both types are an All metal bakeable construction. Miniature type has Nickel diaphragm suitable for hot or corrosive gases

- 16CF or 40CF flanges
- Spare parts available



Specification Miniature Leak Valve

Vacuum	UHV
Min leak	10 ⁻⁷ mbar-l/sec
Closed leak	< 10 ⁻¹² mbar l/s
Max. Inlet Pressure	10 bar
Max. Conductance	0.1 l/s
Max Temp open	450°C
Max. Temp. closed	250°C
Materials	SS, Nickel Diaphragm
Gas inlet	16CF
Gas outlet	16CFT (tapped M4) suitable for hot or corrosive gases

Miniature UHV Leak Valve 16CF Tapped Flange in base of body

BASE FL.	SIDE FL.	PART NUMBER
16CF TAPPED	16CF	514-LVF-C16

Specification Precision Leak Valve

Vacuum	UHV
Min leak	10 ⁻¹¹ mbar-l/sec
Closed leak	< 10 ⁻¹² mbar l/s
Max. Inlet Pressure	10 bar
Max. Conductance	0.1 l/s
Max Temp open	450°C
Max. Temp. closed	250°C
Materials	SS, Sapphire Seal
Gas inlet	16CF
Gas outlet	16CFT (tapped UNC) or 40CF

UHV All Metal Valves Precision Leak Valve

BASE FL.	SIDE FL.	PART NUMBER
16CF TAPPED	16CF	514-LVP-C16
40CF	16CF	514-LVP-C40

The Precision Leak valve with 16CF outlet flange is only available with an UNC tapped flange. A set of screws is delivered with this valve.



For full dimensional details of the UHV leak Valves, please ask the Sales Office for the Leak Valves Data Sheet

Linear Drives, Rotary Motion Drives and Manipulators



9.1 LINEAR DRIVES: MANUAL, MOTORIZED, PNEUMATIC

-> Page 9.2

UHV bellows COMPACT Drives - Manual Knurled-Knob-Types
 UHV bellows COMPACT Drives - Stepper-Motor-Driven-Types
 UHV bellows Linear Drives - Manual Push-Pull-Types
 UHV bellows Linear Drives - Pneumatic-Types and other options



9.2 ROTARY MOTION DRIVES

-> Page 9.4

Rotary Motion Drives - UHV-Bellows-Types, Length from flange 38mm
 Rotary Motion Drives - UHV-Bellows-Types, Extended length types
 Rotary Motion Drives - Magnetically-Coupled-Type



9.3 Z-SHIFTERS (LINEAR TRANSLATORS)

-> Page 9.5

Z-Shifters - UHV bellows type
 Z-Shifters - Mini Z type
 Rotary/Linear Push Pull - Differentially pumped

9.4 UHV MANIPULATORS AND ACCESSORIES

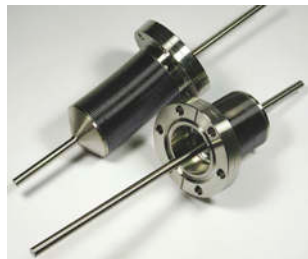
-> Page 9.6

Compact UHV-Manipulators
 High Precision UHV-Manipulators
 UHV Long Travel Z-Translator
 Compact X-Y Stages
 Precision Rotary Motion Drives Single axis
 Precision Rotary Motion Drives Rotation + Linear



9.5 MAGNETIC TRANSPORTERS AND ACCESSORIES -> Page 9.8

UHV Magnetic Transporters
 High Vacuum Magnetic Transporters
 Guide Option for Linear Motion Only
 Quick Access Doors No Viewport
 Quick Access Doors with Viewport
 Load Lock Chambers



9.6 WOBBLE STICKS AND PORT ALIGNERS

-> Page 9.10

Simple Wobble Stick - no locking mechanism
 Compact Tilting Port Aligner
 Precision Tilting Port Aligner



9.7 In-VACUUM STEPPER MOTORS AND SLIDES

-> Page 9.11

In-vacuum Stepper Motor/ Fine Vacuum Motor
 In-vacuum Stepper Motor/ High Vacuum Motor
 In-vacuum Stepper Motor/ UHV with special lubricant
 In-vacuum Stepper Motor/ UHV - NO lubricant

In-vacuum Motorised Slides

1 Sub-D
 2 CM + DIL F/T
 3 Coax F/T
 4 Power High Voltage
 5 Thermo-couple
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Linear Drives Manual and Motorised – COMPACT type

A new range of linear drives designed for demanding applications where precise positioning of components is required.

- Manual drive with knurled knob and position scale (min readout: 10µm)
- Stepper Motor version with scale and limit switches option

Typical applications include shutter control.



Specification Compact Drives

Vacuum	UHV
Temp.	220°C max (Stepper Motors removed)
Materials	Stainless Steel, Aluminium
Seal	TIG weld
Bellows	Edge welded
Shaft	6 mm
Shaft tip	M4 tapped hole

Specification Manual types

Travel/ rev.	1 mm
Min readout	10µm
Dimensions - please ask for a full data sheet	

Specification Motorised types

Motor	2 phase stepper
Wires	8 wire
Current max	2 A per phase (Bipolar wiring)
Travel	5µm / 1 full step
Repeatability	+/-1 µm typical
Manual knob	included
Limit Switches	Optional



Drive with limit switch box. A single Sub-D connector is used for stepper motor connection and mechanical limit switches

16CF MANUAL KNURLED KNOB types 6 mm shaft

FLANGE	TRAVEL	PART NUMBER
16CF	25 mm	612-CLD25-C16
16CF	50 mm	612-CLD50-C16
16CF	100 mm	612-CLD100-C16

Note: also available on 40CF and other flanges

16KF MANUAL KNURLED KNOB types 6 mm shaft

FLANGE	TRAVEL	PART NUMBER
16KF	25 mm	612-CLD25-K16
16KF	50 mm	612-CLD50-K16
16KF	100 mm	612-CLD100-K16

Note: also available on 25KF and 40KF flanges

UHV bellows COMPACT Drives STEPPER MOTOR driven types - 6 mm shaft

FLANGE	TRAVEL	PART NUMBER
16CF	25 mm	612-CLD25-SM-C16
16CF	50 mm	612-CLD50-SM-C16
16CF	100 mm	612-CLD100-SM-C16

Note: also available on KF and other flanges

UHV bellows COMPACT Drives STEPPER MOTOR with LIMIT SWITCH BOX

FLANGE	TRAVEL	PART NUMBER
16CF	25 mm	612-CLD25-SM-LS-C16
16CF	50 mm	612-CLD50-SM-LS-C16
16CF	100 mm	612-CLD100-SM-LS-C16

Note: also available on KF and other flanges

The standard axis has a diameter of 6mm with an M4 vented thread in the tip. Min. Length is 90mm for CF16, 101mm for CF40 and 102mm for all KF versions.

We can offer special axis with competitive prices. Please ask for your quote

Linear Drives, Push-Pull and Pneumatic

Linear drives are designed for rapid full travel operation where fast response is required.

Note that the drivers are interchangeable and the Manual one can be exchanged for Pneumatic.

Additionally a Manual knob allowing intermediate position control is available as an option.

- Manual version Quick Action Push-Pull
- Pneumatic option
- All metal edge welded bellows construction

Specification Linear Drives

Vacuum	UHV
Temperature	220°C max
Materials	Stainless Steel
Seal	weld
Bellows	Edge welded
Shaft	6 mm
Cycles	>10,000
Operation	Manual Push-Pull (Rotary Knob + Pneumatic actuator option)



612-LD100-PP-C16, Push-Pull drive with 100 mm travel

Specification Pneumatic types

Air pressure	5-7 bar
Voltage	24 V DC
	24 V AC and 240 V AC option



Pneumatic linear drive 612-LD50-PM-C16 with rotary knob exchange kit



**16CF UHV bellows Linear Drives
MANUAL PUSH-PULL types**

FLANGE	TRAVEL	PART NUMBER
16CF	25 mm	612-LD25-PP-C16
16CF	50 mm	612-LD50-PP-C16
16CF	100 mm	612-LD100-PP-C16

Note: also available on 40CF and other flanges

**16KF bellows Linear Drives
MANUAL PUSH-PULL types**

FLANGE	TRAVEL	PART NUMBER
16KF	25 mm	612-LD25-PP-K16
16KF	50 mm	612-LD50-PP-K16
16KF	100 mm	612-LD100-PP-K16

Note: also available on 25KF, 40KF and other flanges

**UHV bellows Linear Drives
PNEUMATIC types**

FLANGE	TRAVEL	PART NUMBER
16CF	25 mm	612-LD25-PM-C16
16CF	50 mm	612-LD50-PM-C16
16CF	100 mm	612-LD100-PM-C16

Note: also available on KF and other flanges

**UHV bellows Linear Drives
OPTIONS**

OPTION	PART NUMBER
Position indicator	614-LD-PI
Double axis	614-LD-DD
Solenoid	24V DC 614-SV-24VDC
Solenoid	230V AC 614-SV-230V
Rot. Knob exchange kit	614-KIT-RD-XXX
Push-Pull exchange kit	614-KIT-PP-XXX
Pneumatic exchange kit	614-KIT-PM-XXX

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- Thermo-couple
- Cables Accessories
- Viewports Fiberoptic
- Valves
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- Process Control
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Rotary Motion Drives

Allectra offers both bellows sealed type Rotary Drives and Magnetically Coupled types.

A new High Torque Magnetically Coupled Drive is now available.

The Bellows Type Rotary Drives are also offered in extended length versions.



Rotary Motion Drives UHV bellows types, Length from flange 38 mm

FLANGE	SHAFT DIAM.	PART NUMBER
16CF	6 mm	611-RD-C16
40CF	6 mm	611-RD-C40

Specification Bellows Type Rotary Drives

Vacuum	UHV
Temp.	220°C max
Materials	Stainless Steel
Bellows	Edge welded
Shaft	6 mm with flat
Shaft length	38mm
Cycles	> 10.000

Rotary Motion Drives UHV bellows types, Extended length types

FLANGE	SHAFT DIAM.	PART NUMBER
16CF	6 mm	611-RD-C16-XX
40CF	6 mm	611-RD-C40-XX



611-RD-C16

Extended length versions are built to order. The Part Number "XX" refers to the length from the flange face to the tip. Please call or e-mail the Sales Office for a quotation.

Specification Magnetically Coupled Drives

Vacuum	UHV
Temp.	to 150°C / 250°C with magnet removed
Torque	see product table
Shaft	30mm long, M4 tapped hole at tip ø 6mm (16CF) / ø10mm (40CF)
Shaft concentricity	> +/- 0.1mm
Max. Speed	500rpm
Motor	DC or Stepper option Pneumatic actuator option

Rotary Motion Drives Magnetically Coupled type

FLANGE	TORQUE	PART NUMBER
16CF	0.15Nm	611-MRD-C16L
16CF	0.49Nm	611-MRD-C16
40CF	2.45Nm	611-MRD-C40

The following options are available for Magnetically Coupled Rotary Drives

- DC Motor
- Pneumatic actuator
- Stepper motor

Please contact Sales Office for details

High Torque magnetic rotary drive on CF40 Flange. With more than 2.4Nm, it can be used for demanding applications.



Z-Shifters (Linear Translators)

Z-Shifter Mini-Z type

Differentially Pumped Push-Pull

Allectra offers a range of devices for moving components inside the Vacuum.

- Bellows all metal Z-Shifters with travel up to 200 mm
- Mini Z-Shifters with travel up to 50 mm
- A low cost Rotary/ Linear Push Pull device with a double O ring seal and differential pumping.

Specification Z Shifters

Vacuum	UHV
Temp.	220°C max
Materials	Stainless Steel
Bellows	Edge welded
Flanges	16CF: both tapped 40CF: top flange tapped 63CF: through holes
Through Bore	16CF: 16mm 40CF: 36mm (38mm on request) 63CF: 63mm



Z-Shifters
UHV bellows type

FLANGE	TRAVEL	PART NUMBER
40CF	25 mm	621-LT-C40-25
40CF	50 mm	621-LT-C40-50
40CF	100 mm	621-LT-C40-100
40CF	150 mm	621-LT-C40-150
40CF	200 mm	621-LT-C40-200
63CF	50 mm	621-LT-C63-50
63CF	100 mm	621-LT-C63-100

Z-Shifters
UHV Mini Z type

FLANGE	TRAVEL	PART NUMBER
16CF	25 mm	621-LTM-C16-25
16CF	50 mm	621-LTM-C16-50



621-LTM-C16-25



613-RLHD700-K40
700mm Travel
Version without pumping port



Long travel O-ring sealed push-pull drive



613-RLD200-DP-C40 with 16KF Pumping Port

Rotary/ Linear Push Pull 200 mm / 500 mm travel
Differentially pumped dual O rings

FLANGE	TRAVEL	PART NUMBER
40CF	200 mm	613-RLD200-DP-C40
25KF	200 mm	613-RLD200-DP-K25
40KF	200 mm	613-RLD200-DP-K40
40CF	700 mm	613-RLHD700-DP-C40
40KF	700 mm	613-RLHD700-DP-K40
40CF	1000 mm	613-RLHD1000-DP-C40
40KF	1000 mm	613-RLHD1000-DP-K40

Other lengths are available on request.

KF Versions are available also without pumping port.

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
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UHV Compact Manipulator CMX

The Compact Manipulator features:

- UHV Compatibility bakeable to 200°C
- 40CF Flange with 36 mm through bore
- Optional 63CF or 100CF base flange
- +/-10mm of X/Y movement by micrometer

High Precision X-Y-Z Manipulators HPMX

- 100CF mounting flange with 4 x 16CF accessory ports
- Single and dual axis Precision Rotary Drive options



621-CMX-50-C40 with 63CF base flange option

Specification Compact X-Y-Z Manipulators

Vacuum	UHV
Materials	Stainless Steel, Anodised Aluminium
Temperature	200°C max.
Bellows	Edge Welded
X-Y Motion	Micrometer driven
Operation	Manual with mm-Scale for Z travel
Flange	CF with Tapped holes at top and CF with through holes at bottom
Clear Bore	36mm
Travel	Overall height
50 mm	209 mm
100 mm	276 mm
150 mm	366 mm
200 mm	450 mm

COMPACT UHV MANIPULATORS Tapped CF Flanges, Bore 36 mm

FLANGE	TRAVEL	PART NUMBER
40CF	50 mm	621-CMX-50-C40
40CF	100 mm	621-CMX-100-C40
40CF	150 mm	621-CMX-150-C40
40CF	200 mm	621-CMX-200-C40

Note: 63CF or 100CF bottom flange available to order

Specification High Precision X-Y-Z Manipulators

Vacuum	UHV
Materials	Stainless Steel, Anodised Aluminium
Temperature	200°C max.
Bellows	Edge Welded
X-Y Motion	Cross Roller Slides with Precision Micrometers +/-12.5mm (+/-25mm option)
Z Motion	Re-circulating ball guides 50mm up to 200 mm
Flange	40CF tapped at top and 100CF through holes at bottom
Accessory ports	4 x 16CF
Clear Bore	
Standard	36 mm
Wide bellows option	45 mm

HIGH PRECISION UHV Manipulators 40CFT top flange, 100CF bottom flange

Z TRAVEL	BORE	PART NUMBER
50 mm	36 mm	623-HPMX-50
100 mm	36 mm	623-HPMX-100
150 mm	36 mm	623-HPMX-150
200 mm	36 mm	623-HPMX-200
50 mm	45 mm	623-HPMX-50-W
100 mm	45 mm	623-HPMX-100-W
150 mm	45 mm	623-HPMX-150-W
200 mm	45 mm	623-HPMX-200-W



Detail of a version with additional springs

Allectra can offer custom built sample heating and cooling stages for many applications. Please call or e-mail Sales Office to discuss your requirements

UHV Z Axis Long Travel Translator

A range of UHV compatible Linear Translators with travel from 150 mm up to 500 mm.
 40CF Through Hole Flanges top and bottom
 Clear Bore of 36 mm
 0.1 mm Z resolution
 Motorised option



Specification Long Travel Z Stages

Vacuum	UHV
Temp.	220°C max
Materials	Stainless Steel, Anodised Aluminium
Flanges	40CF with through holes at top and bottom
Bellows	Edge welded 36mm clear bore
Z resolution	0.1 mm
Drive Screw	2-axis type

**LONG TRAVEL Z Shifters
UHV bellows type**

FLANGE	TRAVEL	PART NUMBER
40CF	150 mm	621-ZLT-C40-150
40CF	200 mm	621-ZLT-C40-200
40CF	250 mm	621-ZLT-C40-250
40CF	300 mm	621-ZLT-C40-300
40CF	400 mm	621-ZLT-C40-400
40CF	500 mm	621-ZLT-C40-500

Compact X-Y stage

+/-10mm of X-Y travel
 40CFT, 63CFT or 100CFT tapped flanges top and bottom
 Long travel Translators may be mounted on top of the X-Y stages to form a Long travel manipulator.



Specification Compact X-Y Stages

Vacuum	UHV
Materials	Stainless Steel
Temperature	200°C max.
Bellows	Edge Welded
X-Y Motion	+/- 10mm Micrometer driven
Flange	CF,tapped holes at top and bottom
Clear Bore	40CF 36 mm 63CF 50 mm 100CF 90 mm

**Compact X-Y Stages
Tapped CF Flanges**

FLANGE	BORE	PART NUMBER
40CF	36 mm	622-XY-12-C40
63CF	50 mm	622-XY-12-C63
100CF	90 mm	622-XY-12-C100

Precision Rotary Drives

Precision extended length Rotary Drives are custom made to suit the application. They are available with Primary Rotation only or Primary and Secondary for use with Sample Holders which have azimuthal motion (tilt) as well as Primary Rotation.

**Precision Rotary Motion Drives Length to order
UHV bellows types, Single axis**

FLANGE	SHAFT DIAM.	PART NUMBER
40CF	9.5 mm	611-PRD-C40-XX

**Precision Rotary Motion Drives Length to order
UHV bellows types, ROTATION + LINEAR 6 mm**

FLANGE	SHAFT DIAM.	PART NUMBER
40CF	9.0 & 3.0 mm	611-PRD2-C40-XX



611-PRD-C40-XX

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
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Magnetic Transporters - High Vacuum & UHV

UHV Magnetic Transporters are ideal for long travel applications where High Precision is not required. A typical application is sample transfer from Preparation Chamber to Analysis Chamber.

UHV types are suitable for baking to 200°C and can be fitted with a guide to prevent rotary motion if required. For special applications, Allectra can also supply other types of Transporters including Rack and Pinion types and custom sample stages



General Specification Magnetic Transporters

Vacuum	UHV
Materials	Stainless Steel
Coupling	Magnetic
Decoupling force	20N
Shaft	15.8 mm
End fitting	M5 tapped hole
Temperature	
UHV version	200°C max
Standard	160°C max
Lubricant	
UHV version	none
Standard	330-MCOTE-296

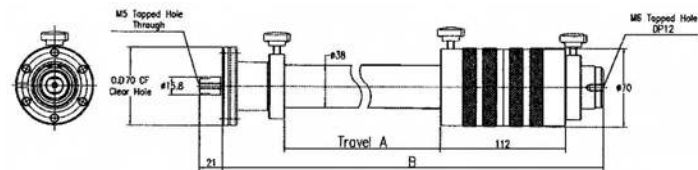
UHV Magnetic Transporters - No lubricant Linear and Rotary Motion

FLANGE	TRAVEL	PART NUMBER
40CF	500 mm	615-MTP-0500UHV
40CF	600 mm	615-MTP-0600UHV
40CF	800 mm	615-MTP-0800UHV
40CF	1000 mm	615-MTP-1000UHV



HIGH VACUUM Magnetic Transporters Linear and Rotary Motion

FLANGE	TRAVEL	PART NUMBER
40CF	500 mm	615-MTP-0500
40CF	600 mm	615-MTP-0600
40CF	800 mm	615-MTP-0800
40CF	1000 mm	615-MTP-1000



615-MTP-0500UHV



Allectra can also offer special types of Transporters including

- Dual rotation axes
- Rack and pinion

Please call or e-mail Sales Office with details of your requirement

ALL Magnetic Transporters Guide Option for Linear Motion Only

FLANGE	TRAVEL	PART NUMBER
40CF	ALL	615-LG-OPT

Allectra offers a design and build service for sample holder accessories for use with Magnetic Transporters. Existing designs include Sample Cassettes and heated Plates.



Custom made heater



- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
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Wobble Sticks and Port Aligners

Wobble Sticks: Allectra can offer a selection of Wobble Sticks both single and double action with Pincer Grip Jaws or In-Line-Jaws. Please call Sales Office for details and prices.

Port Aligner: This bellows stage allows small adjustments of alignment to be made. It is useful for Electron Guns and similar devices. Please call Sales Office.



616-PA-C40

General Specification Wobble Sticks

Vacuum	UHV
Materials	316L SS for bellows and flanges
Rod	6,35 mm ø, outer length 54mm
Length in Vac.	106 ... 156mm for 50mm version 44 ... 144mm for 100mm version

Simple Wobble Stick No locking mechanism

FLANGE	ANGLE	PART NUMBER
40CF	50 mm +/- 22°	630-SWS50-C40
40CF	100 mm +/- 22°	630-SWS100-C40



630-SWS100-C40

630-SWS50-C40

Specification Port Aligner

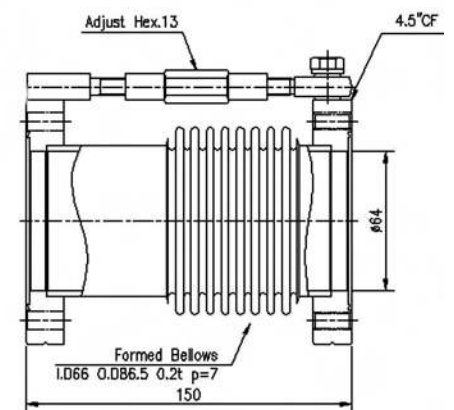
Vacuum	UHV
Temp.	616-PA: 200°C, 616-PPA: 150°C
Materials	316L SS for formed bellows
Top Flange	40CF or 63CF through holes
Bottom Flange	40CFT or 63CFT tapped
Tilt mechanism	3 Rods with position adjustment allowing +/-5° tilt and +/-5mm length
Micrometers	Option PPA models only
Overall height	40CF: 90mm, 63CF: 150mm

Compact Tilting Port Aligner 3 Positional rods with +/- 8°

FLANGE	CLEAR BORE	PART NUMBER
40CF	36 mm	616-PA-C40
63CF	64 mm	616-PA-C63



616-PPA-C40



616-PA-C63

Precision Tilting Port Aligner Micrometer adjustment

FLANGE	CLEAR BORE	PART NUMBER
40CF	36 mm	616-PPA-C40
63CF	64 mm	616-PPA-C63

The Precision Port aligner allows a tilt of +/- 5° and a shift of +/-3mm. Both directions are controlled by micrometer screws

In-vacuum Stepper Motors

Allectra offers a range of In-Vacuum Stepper Motors both High Vacuum and UHV Types. These motors offer an alternative to mechanical linkages and bellows in vacuum. Allectra In-Vacuum Motors are conventional 2 phase stepper motors with 200 (optionally 500) steps per revolution. They may be driven by a wide range of commercially available Controllers and Drivers and are suitable for Half Step and Micro-Step Control systems. Values given here are based on the standard Bi-Polar running mode.



General Specification In-vacuum Stepper Motor

Electrical	2 phase, 4 wire Stepper Motor
Materials	SS housing, Kapton wire insulation
Phase current	1.2 A (Standard)
Sizes	19mm up to 52mm diameter
Holding Torque	see product tables
Rear Shaft Exten.	Standard (motors can be ordered without shaft extension as an option)
Steps per Revolution	200 Standard (500 as Option)

In-vacuum Stepper Motor: 200 steps per revolution FINE VACUUM Motor

SIZE	HOLD TORQUE	PART NUMBER
19	3.4 mNm	671-SM19-CL-200-1.2
32	45 mNm	671-SM32-CL-200-1.2
52	405 mNm	671-SM52-CL-200-1.2

In-vacuum Stepper Motor: 200 steps per revolution HIGH VACUUM Motor

SIZE	HOLD TORQUE	PART NUMBER
19	3.4 mNm	671-SM19-HV-200-1.2
32	45 mNm	671-SM32-HV-200-1.2
52	405 mNm	671-SM52-HV-200-1.2

Vacuum Specification

Base Vacuum	
Motor type	
Fine Vacuum	10 ⁻³ mbar, max. 150°C
High Vacuum	10 ⁻⁷ mbar, max. 200°C
UHV (lubricated)	10 ⁻¹⁰ mbar, max. 280°C
UHV (dry)	10 ⁻¹¹ mbar, max. 280°C
Thermocouple	built-in K Type -UHV motors only
Radiation Res.	to 10 ⁶ J/ kg -UHV types only

In-vacuum Stepper Motor: 200 steps per revolution UHV with special lubricant

SIZE	HOLD TORQUE	PART NUMBER
19	3.4 mNm	671-SM19-UHVG-200-1.2
32	45 mNm	671-SM32-UHVG-200-1.2
52	405 mNm	671-SM52-UHVG-200-1.2

In-vacuum Stepper Motor: 200 steps per revolution UHV NO lubricant

SIZE	HOLD TORQUE	PART NUMBER
19	3.4 mNm	671-SM19-UHV-200-1.2
32	45 mNm	671-SM32-UHV-200-1.2
52	405 mNm	671-SM52-UHV-200-1.2



Back side view with rear shaft and outgassing holes

Options for Motors:

- 500 steps per revolution- not available for all types
- Current per phase 0.3A, 0.6A, 1.2A, 2.5 A, 5A (depending on size)
- Cryo-Motors for 4K to 40°C
- Reduction Gears 4:1 down to 256:1

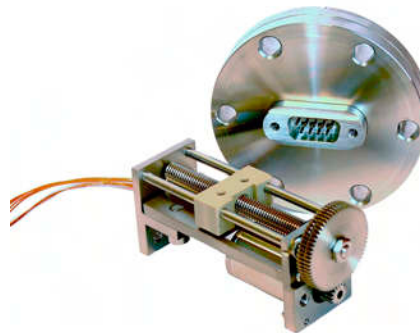
Other size motors on request

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
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Miniature Motorised Slides

Designed to have smallest possible size with reasonable resolution and price, this slide offers 50 mm travel for low loads (typically 100 g) with a nominal resolution of 1.25 μm per full step. Typical repeatability is < 5 μm . The vacuum range depends on the choice of Stepper Motor. The slide is UHV compatible. Three different motors are available: HV, UHV-G (with special lubricant) and a dry-lubricant UHV version.

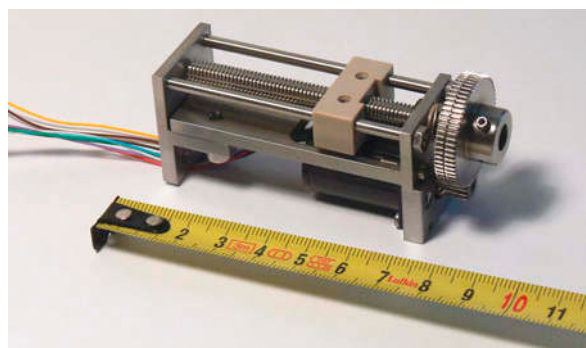


General Specification Miniature Slide 50 mm

Base Vacuum	HV	10^{-7} mbar
	UHV(G)	10^{-10} mbar
	UHV	10^{-11} mbar
Material	Stainless Steel, PEEK	
Resolution	1,25 μm / full step	
Dimensions	75 x 27 x 40 mm max.	
Temp. rating	230°C (UHV type only)	

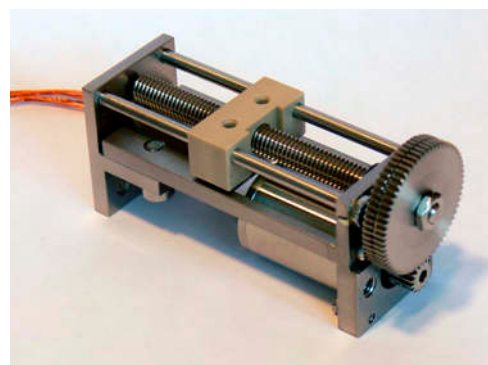
In-vacuum Motorised Slide X AXIS

VACUUM	TRAVEL	PART NUMBER
HV	50 mm	673-SLIDE50-HV
UHV-G	50 mm	673-SLIDE50-UHV-G
UHV	50 mm	673-SLIDE50-UHV



In-vacuum Motorised Slide X-Y Slide

VACUUM	TRAVEL	PART NUMBER
HV	54 mm	673-SLIDE54XY-HV
UHV-G	54 mm	673-SLIDE54XY-UHV-G
UHV	54 mm	673-SLIDE54XY-UHV



Allectra also offers an X-Y-table which can pass through a CF100 flange (102 mm \varnothing required). This slide gives 54 mm travel in both axes. Larger motors are available which give more force or higher speed for higher loads up to a maximum 500 g.

Allectra offers complete motorised assemblies ready to run, including wiring, feedthroughs and, if required, Stepper Motor Controller. Please call or e-mail Sales Office for details.

Shielded twisted pair wires (page 64) are very suitable for In-vacuum Motor wiring. Allectra can offer wiring and Feedthroughs for In-vacuum Motors. Please call or e-mail Sales Office.