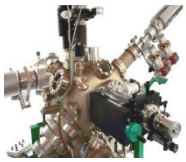
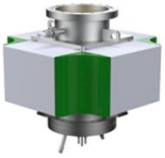


1 – VACUUM & ULTRA VACUUM MANIPULATION

2 – PUMPING & BAKEOUT

3 - VALVES

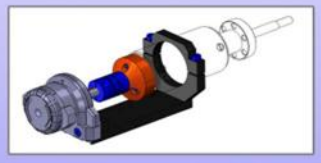
4 - CF / ISO / KF COMPONENTS



5 – MANIPULATORS

6 – EFFUSION CELLS

7 – SAMPLE HOLDERS & HEATERS



VACUUM & ULTRA VACUUM MANIPULATION

The manipulation instruments have been designed to provide translation and rotation movements of components and samples in vacuum and ultra-high-vacuum environments (down to 10^{-12} mbar) with high precision.

They were developed by Meca 2000 to ensure very high robustness and reliability.

The materials used for the manufacturing of these devices have been selected to minimize outgassing as much as possible and to withstand bake-out temperatures of 250 °C.

In addition, their manufacturing is subject to rigorous controls to guarantee complete compatibility with ultra-high-vacuum environments.

Vinci Technologies' product range includes:

- Direct-drive translation feedthroughs: **PTD** series
- Screw-driven translation feedthroughs: **PTV** series
- Mechanical rotary feedthroughs: **TMR** series
- Magnetic rotary feedthroughs: **TMG** series
- Central-passage rotary feedthrough: **TMRC**
- Translators (linear stages): **RLTM**, **MTZ**, **MTZR**, and **MZ** series
- 3-axis manipulation tables: **MT3** and **MTS3** series
- XY translation table: **M2D** series
- Magnetic transfer rods: **CTM** series
- Mechanical transfer rods: **CTL** and **CTLT II** series

These feedthroughs, translators, and 2- or 3-axis translation tables can be assembled together to create multi-axis manipulation systems, as shown in the examples below.

COMPONENTS	ROTATION	1-AXIS TRANSLATION	2-AXIS TRANSLATION	3-AXIS TRANSLATION	TRANSFERT ROD
PTD / PTV		X			
TMR / TMG / TMRC	X				
RLTM / MTZ		X			
MTZR / MZ		X			
MTE				X	
MT3				X	
MTS3				X	
M2D			X		
CTL/ CTLT / CTM					X

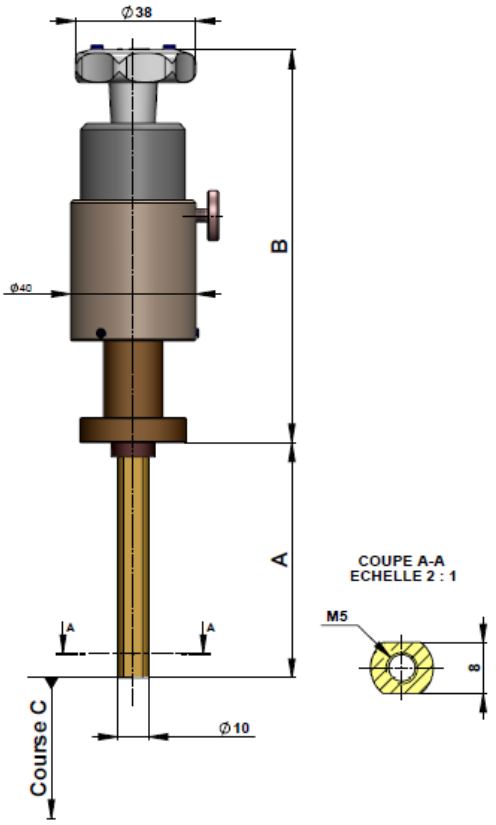
DIRECT-DRIVE TRANSLATION FEEDTHROUGHS

PTD 16 / PTD 40

The PTD series enables linear translation through a vacuum wall using a manual drive knob. Motion is transmitted directly to a sliding shaft, with a welded bellows ensuring a hermetic UHV-compatible seal. A locking screw secures the shaft in any position.

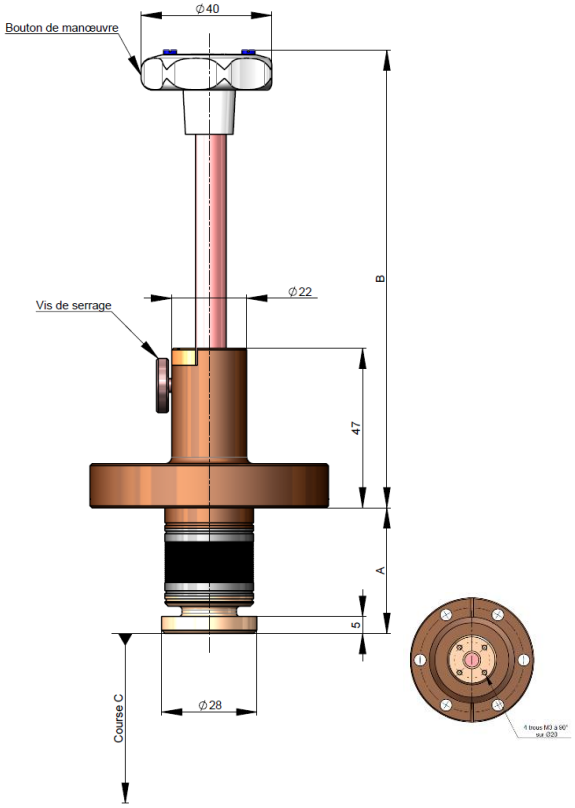
The stroke is obtained by extending and compressing a bellows, which ensures tightness. A locking screw keeps the shaft in place in all positions.

DIRECT-DRIVE TRANSLATION FEEDTHROUGH – CF16



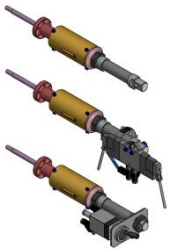
Model	PTD 16/25	PTD 16/50
Flange	CF16	CF16
A min	75	75
B max	125	175
Travel C	25	50
Reference	300 420	301 262

DIRECT-DRIVE TRANSLATION FEEDTHROUGH – CF40



Model	PTD 40/50	PTD 40/100
Flange	CF40	CF40
A min	37	49
B max	123	173
Travel C	50	100
Reference	302 787	302 788

Options for PTD 16 / PTD 40	Reference
Actuator	411 101
Actuator with 5/2 valve	411 102
Actuator with onboard control knob	411 103

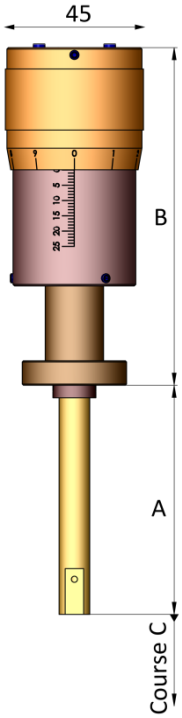


SCREW-DRIVEN TRANSLATION FEEDTHROUGHS

PTV 16 / PTV 40

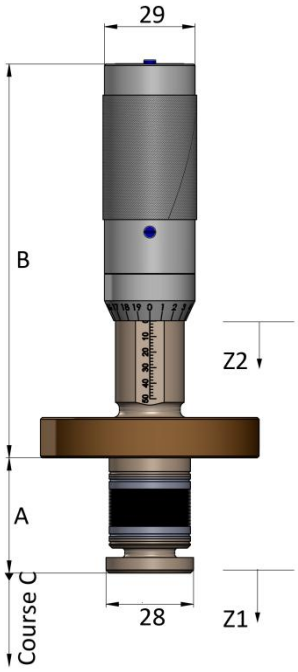
The PTV series use the same operating principle as PTD feedthroughs, but the translation movement is driven by a metric lead screw, allowing positioning with a precision of one-tenth of a millimeter.

SCREW-DRIVEN FEEDTHROUGH – CF16



Model	PTV 16/25	PTV 16/50
Flange	CF16	CF16
A min	75	75
B max	110	160
Travel C	25	50
Reference	300 423	301 261

SCREW-DRIVEN FEEDTHROUGH – CF40



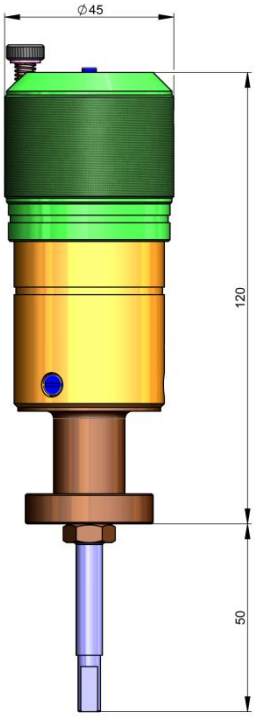
Model	PTV 40/50	PTV 40/100
Flange	CF40	CF40
A min	37	49
B max	126,5	201,5
Travel C	44	69
D	82,5	132,5
Travel Z1	50	100
Travel Z2	25	50
Reference	302 794	302 795

MECHANICAL ROTATION FEEDTHROUGHS

The TMR model has been specially designed for intensive, continuous operation.
The reinforced mechanical parts ensure exceptional robustness. This feedthrough is available in two versions with CF16 or CF40 flanges.

TMR 16 II

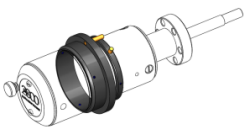
MECHANICAL ROTATION FEEDTHROUGHS– TMR 16 II



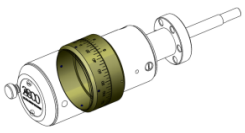
Model	TMR 16 II
	Rotary feedthrough
Connection flange	16CF
Shaft diameter	6 mm
Rotation	360°
Rotational speed	200 rpm
Torque	1 N.m
Locking system	Screw
Bakeout temperature	250 °C
Leak rate	5.10^{-10} mbar.L/s
Operating pressure	1.10^{-10} mbar
Service life **Air-side bearings** **Vacuum-side bearings** **Bellows**	 ≥ 100 000 rounds ≥ 10 000 rounds ≥ 100 000 rounds

Model	Description	References
TMR 16 II	Mechanical Rotation Feedthrough 16 II	**302 040**

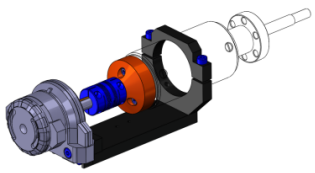
Options		



Fixed and adjustable stops



Graduated scale

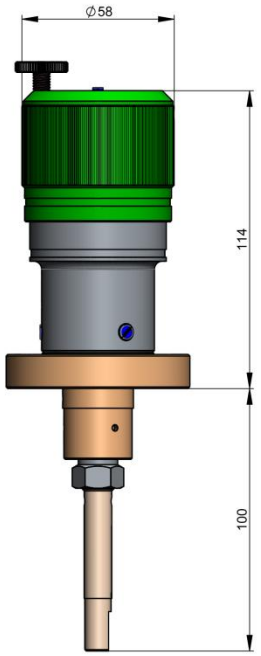


Pneumatic actuation kit

BTR 16 II	Mechanical stop kit	**421 101**
BRGT 16 II	Graduated scale	**421 102**
KCP 16 II	Pneumatic control kit	**421 103**

TMR 40 II

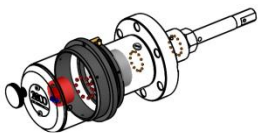
MECHANICAL ROTATION FEEDTHROUGHS – TMR 40 II



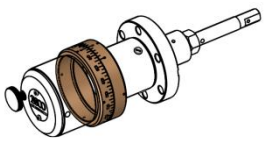
Model	TMR 40 II
	Rotary feedthrough
Connection flange	40CF
Shaft diameter	10 mm
Rotation	360°
Rotational speed	300 rpm
Torque	2 N.m
Locking system	Screw
Bakeout temperature	250 °C
Leak rate	5.10^{-10} mbar.L/s
Operating pressure	1.10^{-10} mbar
Service life **Air-side bearings** **Vacuum-side bearings: Bellows**	 ≥ 100 000 rounds ≥ 10 000 rounds ≥ 100 000 rounds

Model	Designation	References
TMR 40 II	Mechanical Rotation Feedthrough 40 II	**421 402**

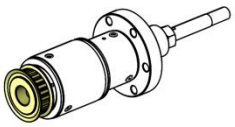
Options		



Mechanical stops



Graduated scale



Motorization kit

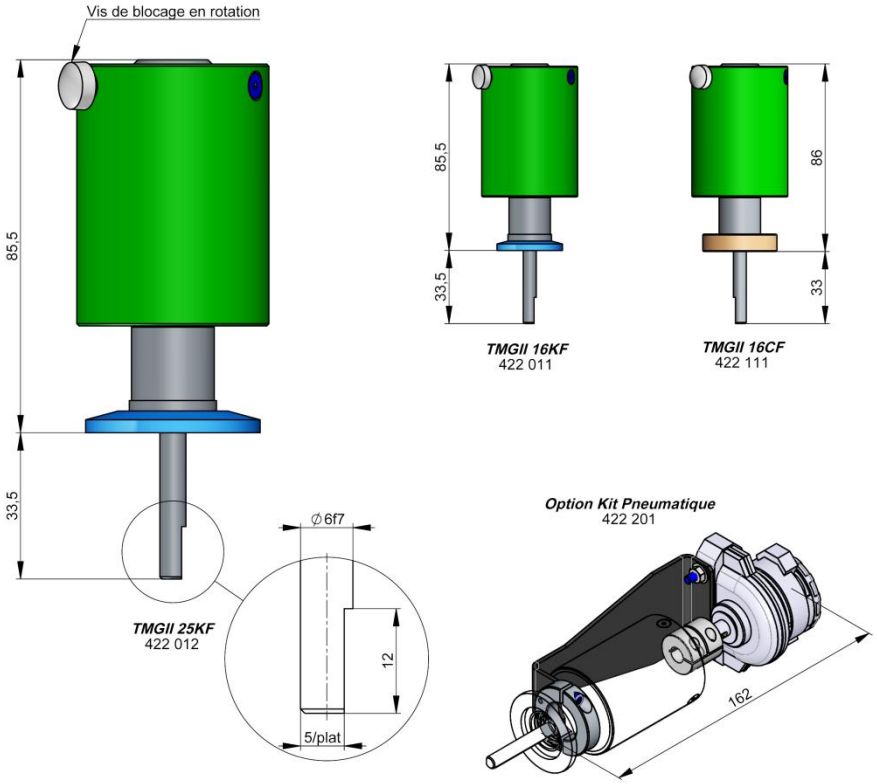
BTR 40 II	Mechanical stop kit	**421 201**
BRGT 40 II	Graduated scale	**421 202**
KCP 40 II	Pneumatic control kit	**421 203**
KCM 40 II	Motorization kit (without motor, without power supply)	**421 204**

MAGNETIC ROTATION FEEDTHROUGHS

TMG 16 II

The TMG model is a cost-effective magnetically-coupled rotary feedthrough. It is used to rotate components such as shutters or small-diameter samples. This feedthrough is available in both KF and CF versions and can be equipped with a motorized or pneumatic actuation system.

MAGNETIC ROTATION FEEDTHROUGHS – TMG 16 II



	MAGNETIC ROTARY FEEDTHROUGHSTMG II			OPTION
	TMGII 25KF	TMGII 16KF	TMGII 16CF	KPII
Flange	25KF	16KF	16CF	Pneumatic kit: Adjustable 0–180° Compatible with all TMGII models
Shaft diameter	6 mm f7			
Maximum rotational speed	600 rpm			
Maximum torque	0.7 N.m			
Bakeout temperature	80 °C with handle / 350°C without handle			
Leak rate	>5.10^{-10} mbar.L/s			
Operating pressure	>1.10^{-10} mbar			
Service life Air-side bearings Vacuum-side bearings Bellows	>100 000 rounds > 10 000 rounds > 100 000 rounds			
Reference numbers	422 012	422 011	422 111	422 201

CENTRAL-PASSAGE ROTARY FEEDTHROUGHS

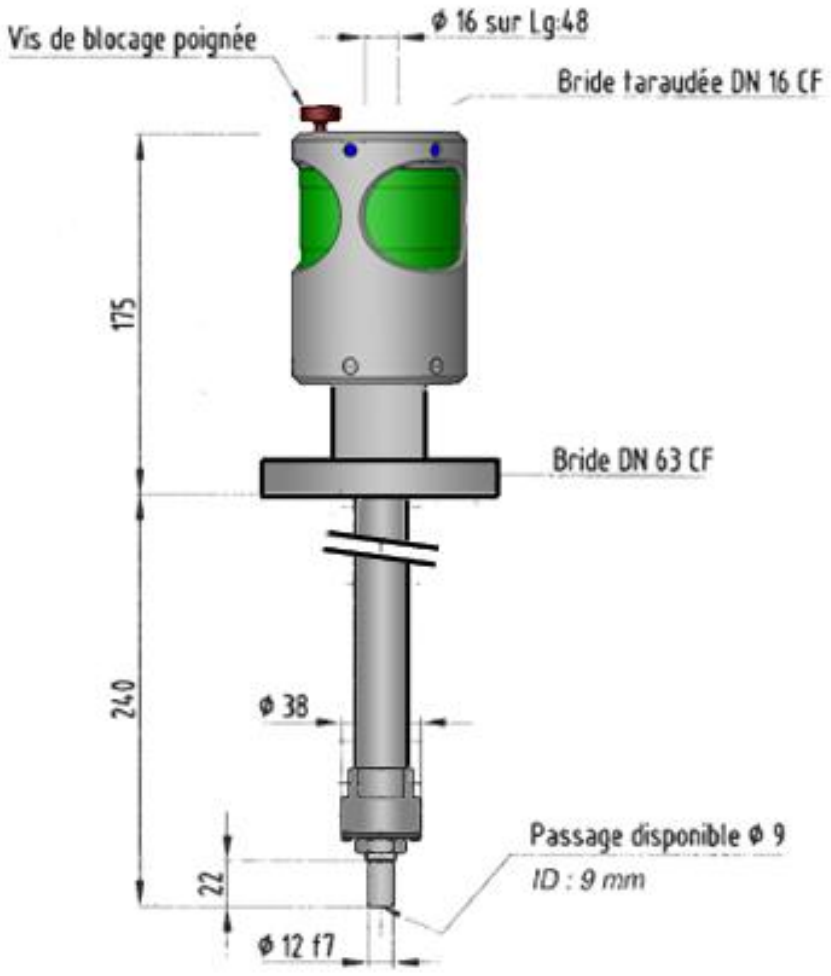
TMRC 63

Rotation Feedthrough on DN63CF Flange

The mechanism of this feedthrough uses an eccentric system operated by a control handle. Sealing is ensured by two welded-diaphragm bellows, which eliminates the drawbacks of other designs that require differential pumping or complex mechanical assemblies.

Its reinforced central shaft allows it to support high loads and provides a usable central bore with a diameter of 9 mm.

This type of feedthrough is generally used in the construction of manipulators with multiple degrees of freedom.



Référence : 302 198

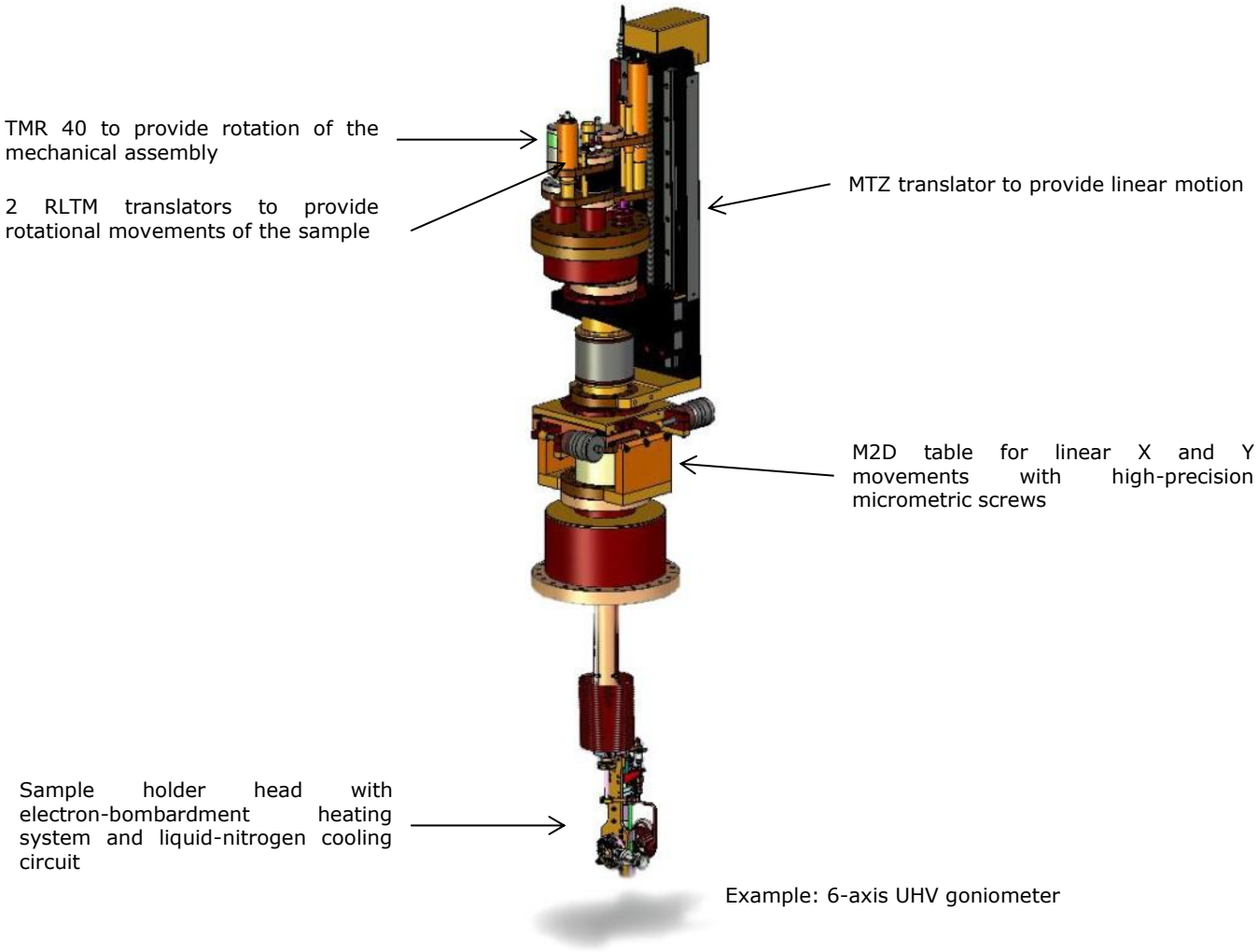
TRANSLATORS

Meca 2000 translators are high-precision devices designed to translate a CF flange along a guided mechanism while maintaining a free central passage.

Their operating principle is based on the compression and expansion of a welded-diaphragm bellows connected to CF flanges, ensuring a completely leak-tight UHV seal.

Motion is actuated either by a rotating handle or by a motor.Fully UHV-compatible in their design, they withstand 250 °C bakeout without disassembly and operate at pressures down to 10^{-12} mbar.

These translators are commonly used in thin-film deposition systems or surface-analysis systems, together with rotary feedthroughs and 3-axis translation stages for sample manipulation. A heating system can also be installed to raise the sample to high temperature.



Example: 6-axis UHV goniometer

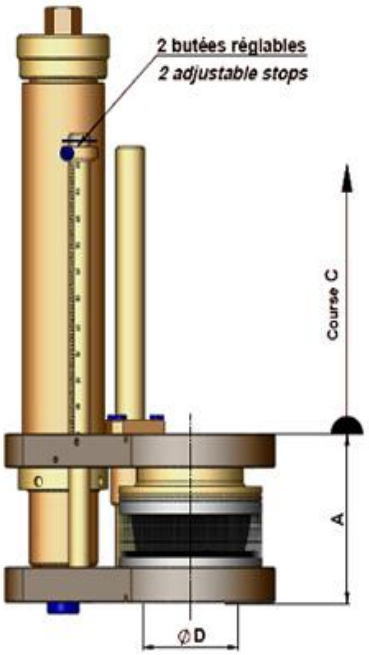
NOTE : The dimensions indicated for the following products are subject to change as part of our product development process, without prior notice.

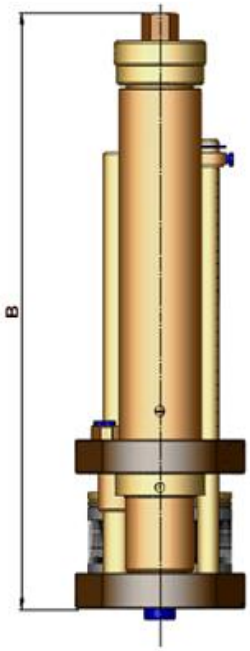
1-AXIS TRANSLATOR

RLTM

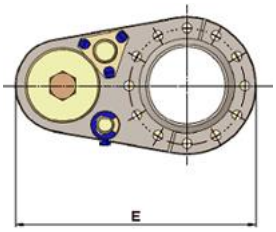
RLTM models are equipped with 40CF or 63CF flanges. These so-called universal flanges feature a double set of threaded holes, allowing installation in multiple mounting orientations. End-of-travel stops are installed along a graduated axis, enabling highly precise limitation of the translation range.

RLTM





Specifications	
Axial Z displacement	
Reading	Repeatability
1 mm	0,1 mm
Materials	SS 304
Strokes (mm)	50 à 150
Flanges	40CF ou 63CF
Cycles	100 000



Model	A		B		C	D	E	Reference
	min	max	min	maxi				
RLTM 50/40CF	42	92	151	201	50	39	117,5	**301 023**
RLTM 100/40CF	63	163	220	320	100	39	117,5	**301 026**
RLTM 150/40CF	75	225	281	431	150	39	117,5	**301 049**
RLTM 50/63CF	50	100	183	233	50	71,5	171,5	**302 836**
RLTM 100/63CF	57	157	247	347	100	71,5	171,5	**302 837**

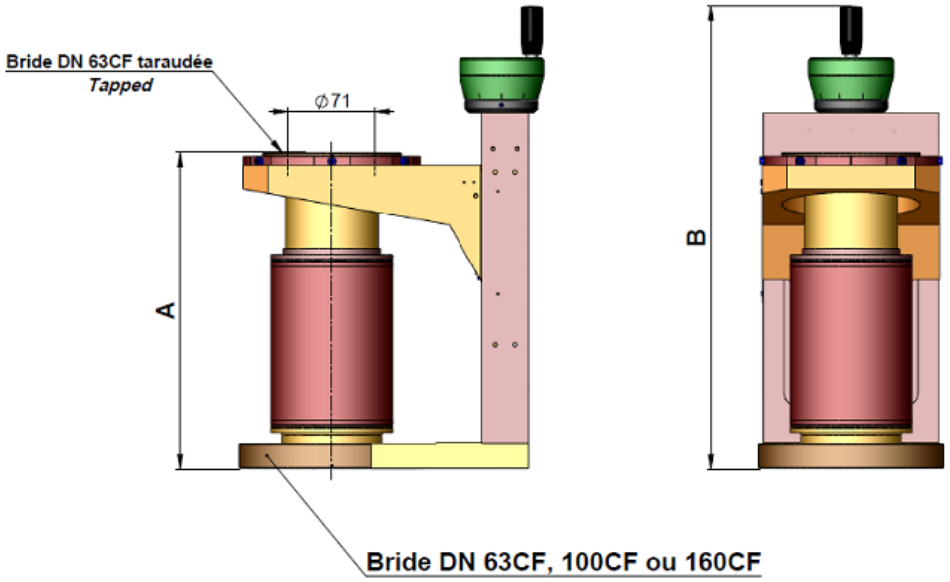
Option		
Motorization - X/40CF	24 VDC motor (without power supply)	**431 011**
Motorization - X/63CF	24 VDC motor (without power supply)	**431 012**
End stops	2 × switches, normally open or normally closed	**431 013**

1-AXIS TRANSLATOR – LARGE DIAMETER

MTZ

This high-precision model is equipped with a 63CF threaded movable flange that allows the mounting of various accessories with a diameter of less than 71 mm.
A scale on the control handle and a ruler along the body allow for easy reading and marking.

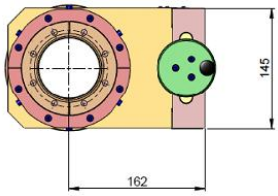
MTZ



Specifications

Z axial displacement	
Reading	Repeatability
0,1 mm	0,05 mm

Materials	SS 304
Strokes (mm)	100 and 200
Fixed flanges	63CF, 100CF or 160CF
Movable flanges	63CF
Cycles	100 000



Model	Ø fixed flange	A		B	Z stroke	Reference
		min	max			
MTZ 100/63CF	63CF	163	263	385	100	**302 234**
MTZ 200/63CF	63CF	163	363	485	200	**302 235**
MTZ 100/100CF	100CF	163	263	385	100	**302 085**
MTZ 200/100CF	100CF	163	363	485	200	**302 087**
MTZ 100/160CF	160CF	163	263	385	100	**302 089**
MTZ 200/160CF	160CF	163	363	485	200	**302 091**

Options		
Motorization - X/63CF	Motor 24 VDC (without power supply)	**432 011**
Motorization - X/100CF	Motor 24 VDC (without power supply)	**432 012**
Motorization - X/160CF	Motor 24 VDC (without power supply)	**432 013**
End stops	2 × switches, normally open or normally closed	**432 014**

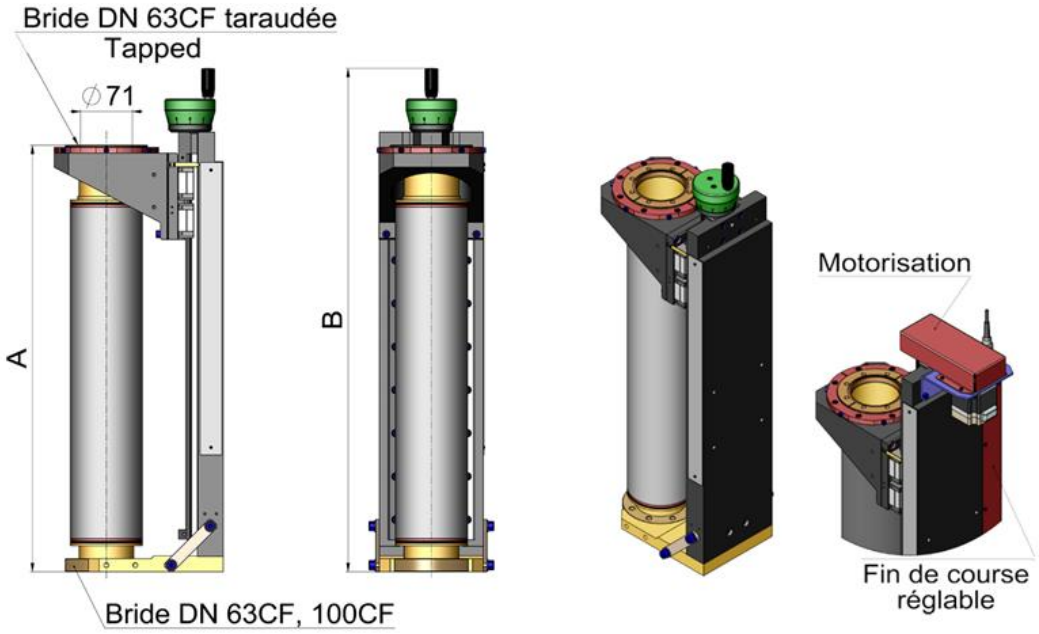
1-AXIS REINFORCED TRANSLATOR – LONG TRAVEL

MTZR

The MTZR model is an improvement on the MTZ model. The axes are reinforced to support heavier loads. In addition, this reinforcement allows for models with a travel of 400 mm, which is greater than for MTZ models.

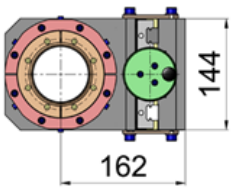
The precision and repeatability of movements are also accurate.

MTZR	Specifications



Z axial displacement	
Reading	Repeatibility
0,1 mm	0,05 mm

Materials	SS 304
Strokes (mm)	200 and 400
Flanges	63CF and 100CF
Cycles	100 000



Model	Ø Fixed flange	A		B	Z stroke	Reference
		min	max			
MTZR 200/63CF	63CF	192	392	500	200	**433 001**
MTZR 400/63CF	63CF	192	592	700	400	**433 002**
MTZR 200/100CF	100CF	192	392	500	200	**433 003**
MTZR 400/100CF	100CF	192	592	700	400	**433 004**

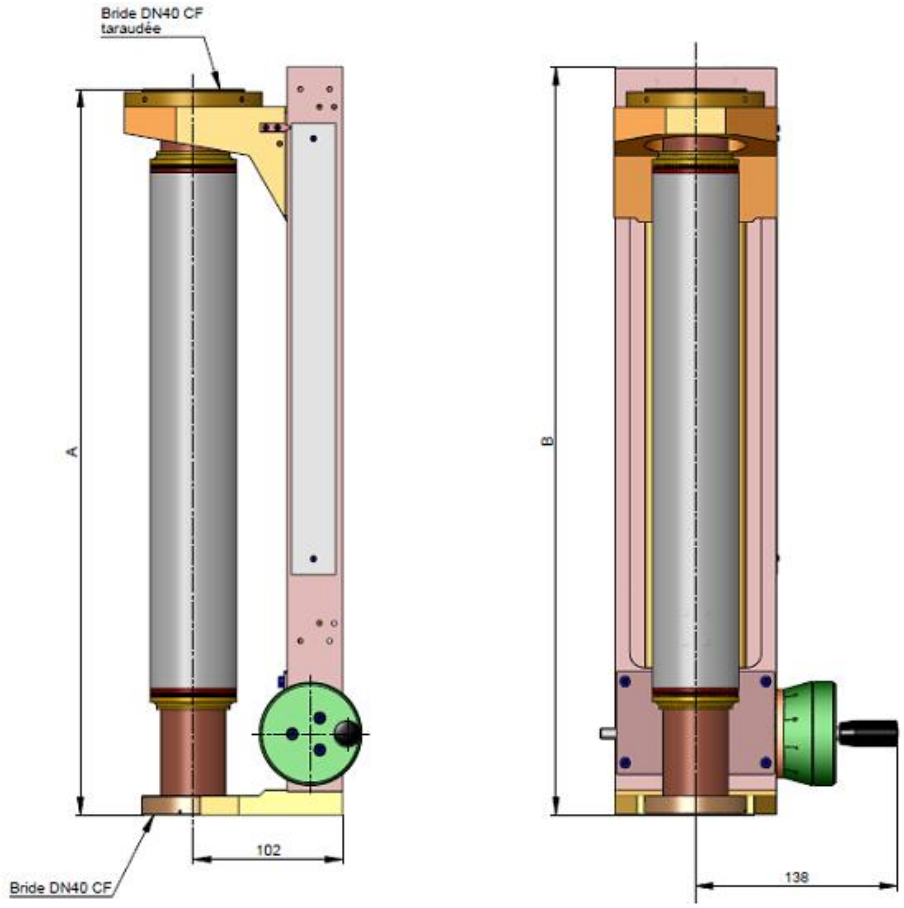
Options		
Motorization - X/63CF	Motor 24 VDC (without power supply)	**433 011**
Motorization - X/100CF	Motor 24 VDC (without power supply)	**433 012**
End stops	2 × switches, normally open or normally closed	**433 013**

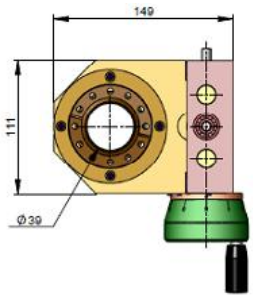
1-AXIS TRANSLATOR – LONG TRAVEL

MZ

This model is equipped with a 40CF threaded mobile flange that allows the instrument to be moved over long distances. The handle located at the base of the translator makes it easy to use.

MZ





Specifications	
Z axial displacement	
Reading	Repeatibility
0,1 mm	0,05 mm
Materials	SS 304
Strokes (mm)	200 to 400
Flanges	40CF
Cycles	100 000

Model	Ø Fixed flanges	A		B	Z stroke	Reference
		min	max			
MZ 200 40CF/40CF	40CF	192	392	407	200*	**434 001**
MZ 300 40CF/40CF	40CF	192	492	507	300*	**302 935**
MZ 400 40CF/40CF	40CF	192	592	607	400*	**434 003**

Options		
Motorization	Motor 24 VDC (without power supply)	**434 011**
End stops	2 × switches, normally open or normally closed	**434 012**

3-AXIS MANIPULATION TABLE

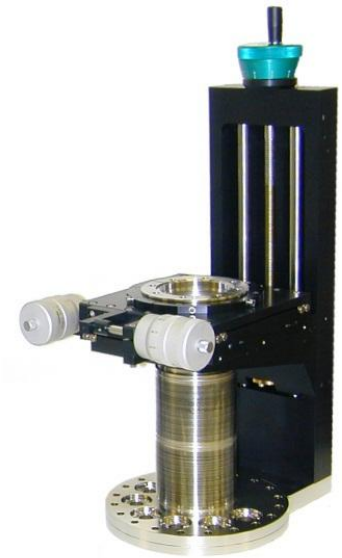
The MECA2000 3-axis tables are mainly used to position or move sample holders with extremely high precision inside ultra-high-vacuum systems. They are therefore an essential component for all sample-handling operations in analysis or thin-film deposition equipment.

The sealing is provided by a welded-bellows assembly which, through deformation, allows the upper flange to translate along the three orthogonal X, Y and Z axes. X and Y displacements are achieved through micrometric or millimetric feedthroughs acting on various guided stages, ensuring smooth, vibration-free movement.

The main Z movement uses a reliable and precise linear-translation mechanism. Motion transmission is achieved through a screw driven by a rotating handle. All motions can be motorized and remotely controlled.

3-axis table MT3

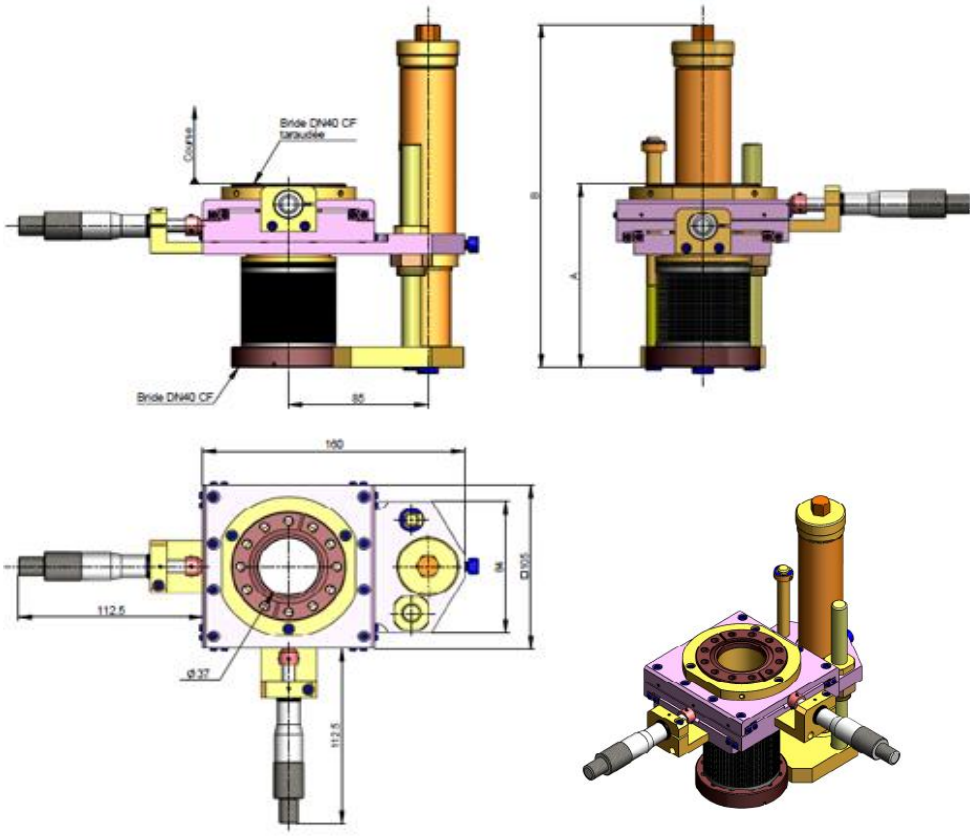
3-axis table MTS3



Note: Dimensions shown for the following products may be subject to change as part of ongoing product development.

MTE : 3-AXIS TABLE

MTE



Specifications

Z axial displacement	
Reading	Repeatability
1 mm	0,1 mm

XY displacements	
Stroke : ± 10 mm	
Millimeter screws	
Reading	Repeatability
1 mm	0.5 mm
Micrometer screws (option)	
Reading	Repeatability
0.01 mm	0,05 mm

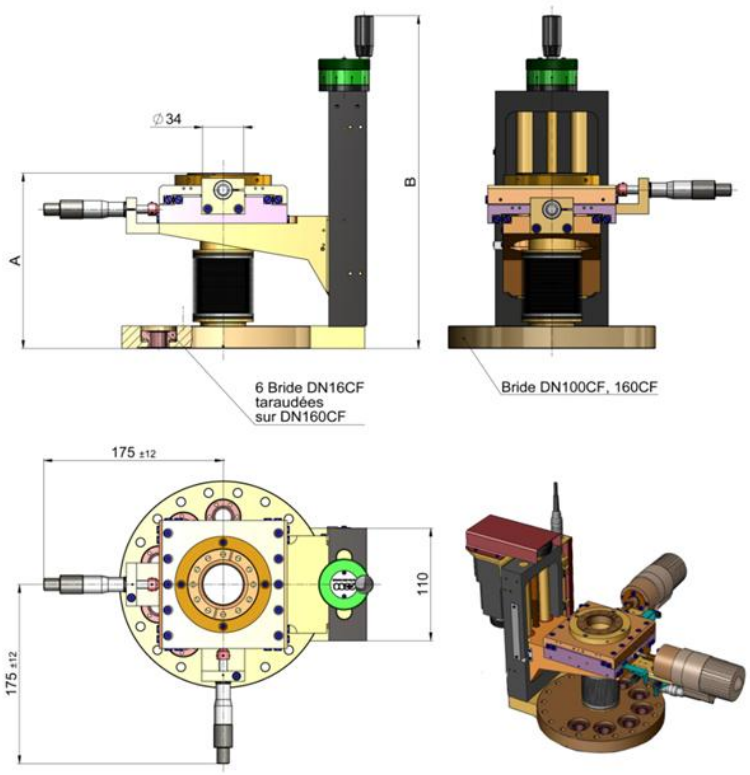
Materials	SS 304
Strokes (mm)	50 et 100
Bride mobile	40CF
Cycles	100 000

Model	Ø Fixed flange	A		Bmax	Stroke Z	Reference
		min	max			
MTE Z50	40CF (tapped)	118	168	271	50	**450 901**
MTE Z100	40CF (tapped)	143	243	354	100	**450 902**

Options		Reference
Micrometer screws X & Y axis	High precision	**450 950**
Z-axis motorization	Motors 24 VDC (without power supply)	**450 951**
X and Y axis motorization		**450 952**
X, Y & Z strokes end stops	6 x Switch NO or NF	**450 953**

MT3 : 3-AXIS TABLE

MT3



Specifications

Z axial displacement	
Reading	Repeatability
0,1 mm	0,05 mm

XY displacements
Stroke : ± 12 mm

Millimeter screws	
Reading	Repeatability
1 mm	0.5 mm

Micrometer screws (option)	
Reading	Repeatability
0.01 mm	0,05 mm

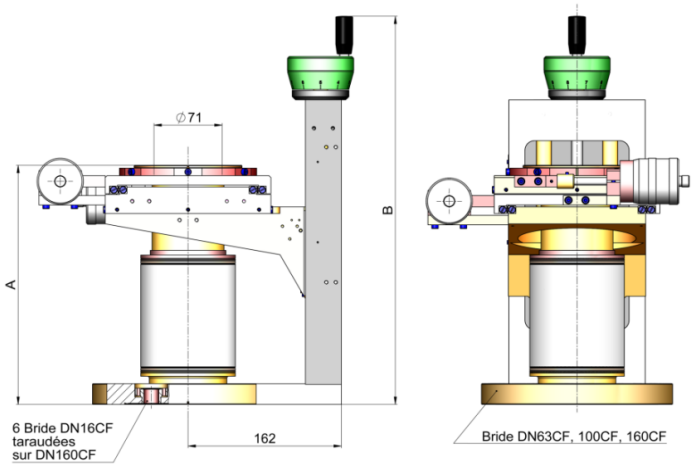
Materials	SS 304
Strokes (mm)	50 and 100
Movable flange	40CF
Cycles	100 000

Model	Ø Fixed flange	A		B	Stroke Z	Reference
		min	max			
MT3 Z50/100CF	100CF	164	214	245	50	**300 452**
MT3 Z100/100CF	100CF	197	297	328	100	**302 071**
MT3 Z200/100CF	100CF	286	486	517	200	**302 073**
MT3 Z50/160CF	160CF	164	214	245	50	**301 710**
MT3 Z100/160CF	160CF	197	297	328	100	**302 097**
MT3 Z200/160CF	160CF	286	486	517	200	**302 099**

Option		
Micrometer screws X & Y axis	High precision	**451 952**
Z-axis motorization	Motors 24 VDC (without power supply)	**451 953**
X and Y axis motorization		**451 954**
X, Y & Z strokes end stops	6 x Switch NO or NF	**451 953**

MTS3 : 3-AXIS TABLE – LARGE DIAMETER

MTS3



Specifications

Z axial displacement	
Reading	Repeatability
0,1 mm	0,05 mm

XY displacements
Stroke : ± 17.5 mm

Millimeter screws	
Reading	Repeatability
1 mm	0.5 mm

Micrometer screws (option)	
Reading	Repeatability
0.005 mm	0,05 mm

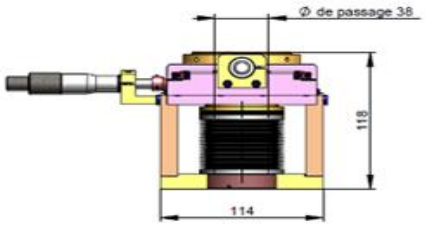
Materials	SS 304
Strokes (mm)	100 et 200
Movable flange	63CF
Cycles	100 000

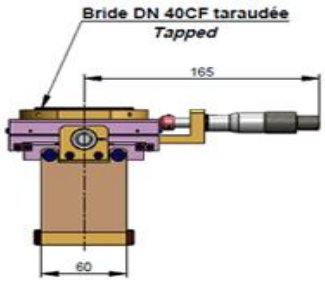
Model	Ø Fixed flange	A		B	Stroke Z	Reference
		min	max			
MTS3 Z100/63CF	63CF	222	322	411	100	**450 001**
MTS3 Z200/63CF	63CF	260	460	546	200	**450 002**
MTS3 Z100/100CF	100CF	222	322	411	100	**450 003**
MTS3 Z200/100CF	100CF	260	460	546	200	**450 004**
MTS3 Z100/160CF	160CF	222	322	411	100	**450 005**
MTS3 Z200/160CF	160CF	260	460	546	200	**450 006**

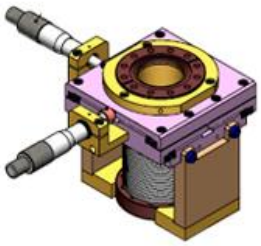
Option		
Millimeter screws X & Y axis	High precision	**451 961**
Z-axis motorization	Motors 24 VDC (without power supply)	**451 962**
X and Y axis motorization		**451 963**
X, Y & Z strokes end stops	6 x Switch NO or NF	**451 964**

2-AXIS TABLES

TRANSLATION TABLE M2D X – Y – CF40	Specifications
	XY displacements
	Stroke : ± 17.5 mm
	Reading µm / Reading mm
	0,005mm / 0,5mm

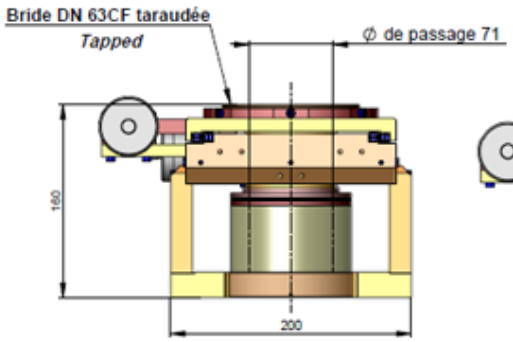


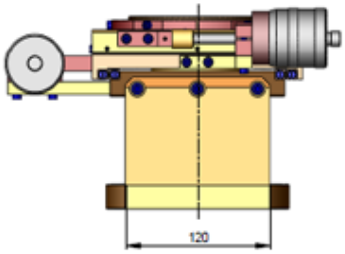


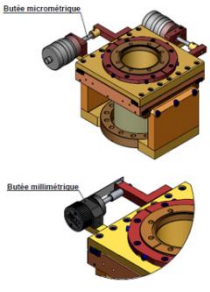


Model	Ø Movable and fixed flanges	Reference
M2D40 (micrometer screws)	40CF	**471 001**
M2D40L (millimeter screws)	40CF	**471 002**

TRANSLATION TABLE M2D X – Y – CF63	Specifications
	XY displacements
	Stroke : ± 17.5 mm
	Reading µm / Reading mm
	0,005mm / 0,5mm







Model	Ø Movable and fixed flanges	Reference
M2D63 (micrometer screws)	63CF / 100CF	**302 605**
M2D63L (millimeter screws)	63CF / 100CF	**471 004**

TRANSFERT RODS

Meca 2000 offers highly reliable transfer rods for the transfer of parts under vacuum and ultra-high-vacuum conditions. These rods are available with mechanical actuation.

The fully mechanical transfer rods of the CTL and CTLT series are high-precision devices that allow users to operate in ultra-high-vacuum environments down to 10^{-12} mbar.

These rods provide a combined rotary and linear motion along a single axis while maintaining full operability in any orientation. These movements can also be motorized and controlled via a joystick. The CTLT series is available with CF40 and CF63 flanges.

Meca 2000 also offers a range of magnetic transfer rods (CTM series, CF40 flange), which provide a cost-effective solution with high transfer torque.

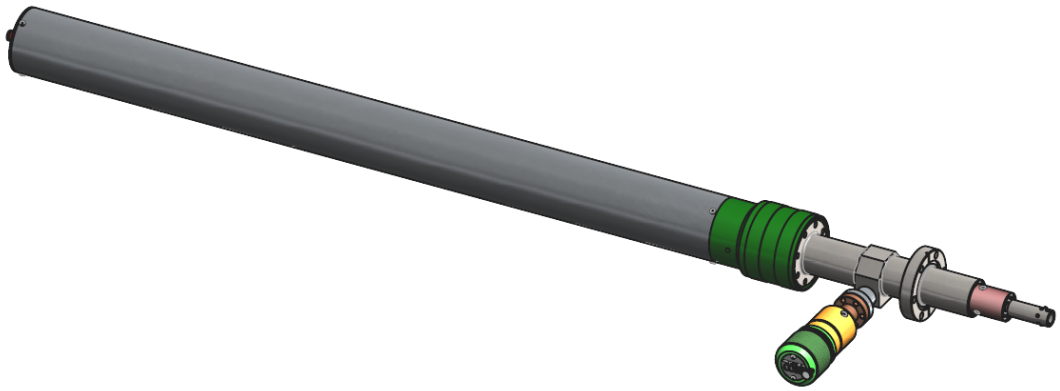
CTLT II transfer rod – CF40 flange (also available in CF63 flange)

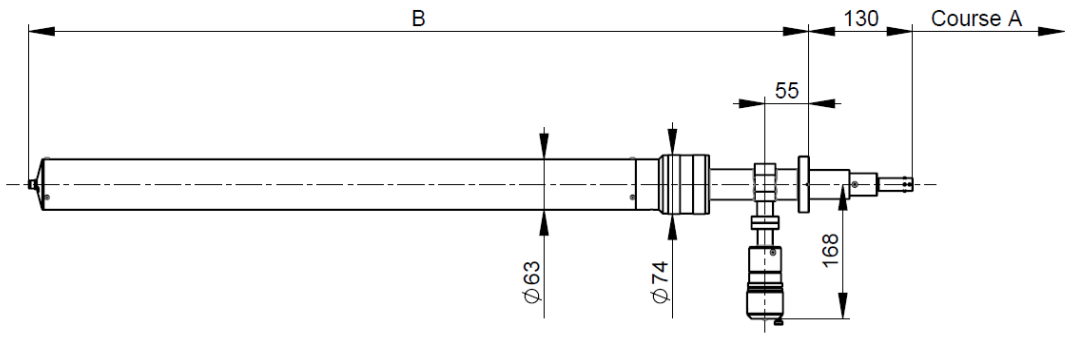
RODS	Operation	Travel	Translation	Rotation
CTL 40//600	Mechanical	600	X	
CTL 40//800	Mechanical	800	X	
CTL 40//1000	Mechanical	1000	X	
CTLT II 40//600	Mechanical	600	X	X
CTLT II 40//800	Mechanical	800	X	X
CTLT II 40//1000	Mechanical	1000	X	X
CTLT II 63//600	Mechanical	600	X	X
CTLT II 63//800	Mechanical	800	X	X
CTLT II 63//1000	Mechanical	1000	X	X
CTLT DP 63//1200	Mechanical	1200	X	X

MECHANICAL TRANSFERT RODS 1 AXIS

CTL 40 : TRANSLATION

MECHANICAL TRANSFERT ROD WITH FLANGE Ø40CF





Model	Travel	Reference
CTL 40/600 II	600	**493 001**
CTL 40/800 II	800	**493 002**
CTL 40/1000 II	1000	**493 003**

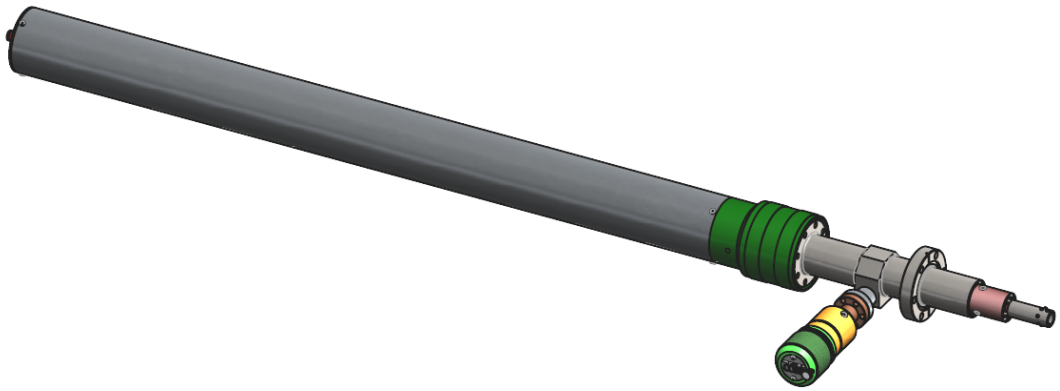
ACCESSORIES FOR TRANSFER RODS

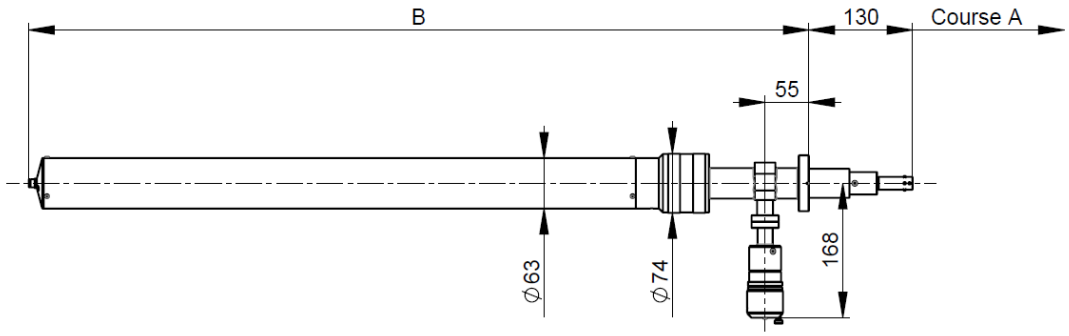
Model	Description	Reference
KMCTL 40	Motorization kit for CTLT40 transfer rod (up to 220 rpm max.)	**493 101**
KPCTL 40	Position sensor kit (front and rear) for linear motions	**493 102**

MECHANICAL TRANSFERT RODS 2-AXIS

CTLT 40 : TRANSLATION AND ROTATION

MECHANICAL TRANSFERT ROD WITH FLANGE Ø40CF





Model	Travel	Reference
CTLT 40/600 II	600	**492 001**
CTLT 40/800 II	800	**492 002**
CTLT 40/1000 II	1000	**492 003**

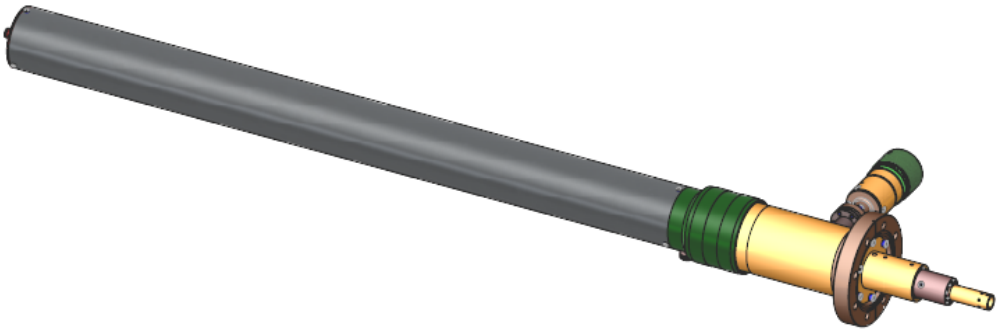
ACCESSORIES FOR TRANSFER RODS

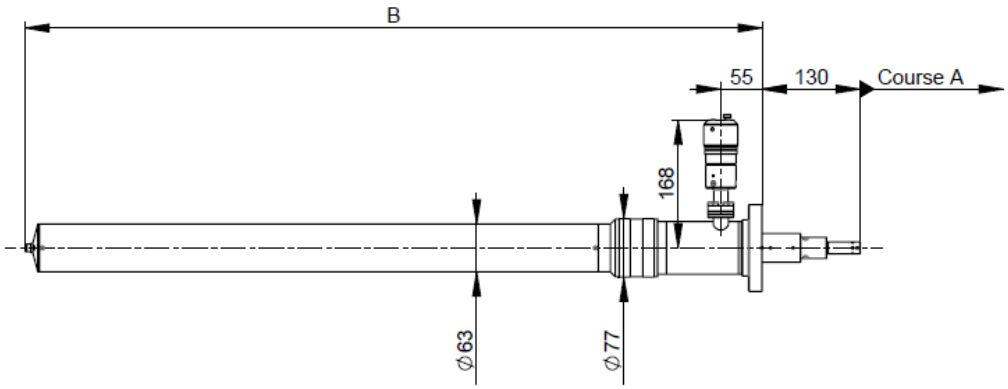
Model	Description	Reference
KMCTLT 40	Motorization kit for CTLT40 transfer rod (up to 220 rpm max.)	**302 604**
KPCTLT 40	Position sensor kit (front and rear) for linear motions	**302 957**

MECHANICAL TRANSFERT RODS 2-AXIS

CTLT 63

MECHANICAL TRANSFERT ROD WITH FLANGE Ø63CF

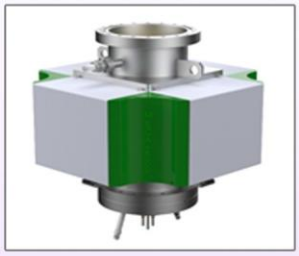




Model	Travel	Reference
CTLT 63/600 II	600	**302 791**
CTLT 63/800 II	800	**302 790**
CTLT 63/1000 II	1000	**302 789**

ACCESSORIES FOR TRANSFER RODS

Model	Description	Reference
KMCTLT 63	Motorization kit for CTLT63 transfer rod (up to 220 rpm)	**302 604b**
KPCTLT 63	Position sensor kit (front and rear) for linear motions	**302 957**



PUMPING & BAKEOUT

The pumping group of a vacuum system must be selected according to the intended applications, the required ultimate pressure, and the maximum acceptable pump-down time.

Drawing on our extensive experience in high and ultra-high-vacuum technologies, we offer a range of high-performance and reliable pumps capable of covering the entire pressure spectrum—from primary vacuum to ultra-high vacuum.

This pump range is divided into four categories:

- Primary pumps, including rotary vane pumps and dry pumps
- Turbomolecular pumps for secondary pumping
- Ion pumps for ultra-high vacuum
- Titanium sublimation pumps

The primary pump range includes rotary vane pumps and dry pumps for common, non-corrosive vacuum and UHV applications.

Two-stage rotary vane pumps are oil-lubricated and connect via KF flanges. They can be equipped with zeolite filters to limit oil backstreaming. Three models are available:

- Two-stage rotary vane pump, 6 m^3/h
- Two-stage rotary vane pump, 9 m^3/h
- Two-stage rotary vane pump, 16 m^3/h

Dry primary pumps offer the advantage of operating without lubrication, eliminating any risk of contamination in vacuum systems and reducing maintenance requirements compared to rotary vane pumps.The dry pumps we offer are of the Scroll type:

- Dry Scroll pump, 12 m^3/h
- Dry Scroll pump, 25 m^3/h

The pressure range between 10^{-6} mbar and 10^{-10} mbar is achieved using turbomolecular pumps. We offer turbo pumps with high compression ratios for light gases, improving ultimate pressure performance:

- Turbo pump 80 L/s
- Turbo pump 300 L/s
- Turbo pump 700 L/s
- Turbo pump 1000 L/s

Finally, for ultra-high-vacuum applications (pressure below 10^{-10} mbar), Meca 2000 has been manufacturing high-performance ion pumps for over 20 years. These pumps are available in four categories:

- Diode ion pumps
- Diode ion pumps for noble gases
- Titanium sublimation ion pumps
- Titanium sublimation ion pumps for rare gases

These ion pumps are powered by high-voltage controllers with one or two outputs.

Feel free to contact us for any further information

meca2000@vinci-technologies.com

ION PUMPING

Meca 2000 ion pumps are diode-type pumps. Designed for ultra-high-vacuum applications, they allow pressures on the order of 10^{-12} mbar to be reached. The high level of care applied during manufacturing—particularly high-temperature bakeouts—significantly reduces the residual hydrogen level.

Requiring no maintenance and capable of starting as high as 10^{-4} mbar, these pumps are mainly used in systems that remain permanently under vacuum.

Two types of ion pumps are available:
PID-series ion pumps and PIDG-series ion pumps.
PIDG pumps combine a diode ion pump with titanium sublimation pumping.

For both series, the pumping elements differ depending on the type of gas to be pumped. For rare gases, which do not react with titanium, special pumping elements are installed.

PID-SERIES ION PUMPS:

PID-series ion pumps operate at 5 kV, supplied by dedicated high-voltage power units.
The current drawn by the pump is proportional to the pressure (see curve on the following slide) and is indicated directly by the power supply.
The geometry of the ceramic insulators used in the pumping elements, together with the high-voltage connector design, minimizes the risk of electrical leakage.The excellent symmetry of the magnetic circuit provides the lowest possible stray magnetic fields.The magnet assembly is built from high-field ferrite standard blocks.
Maximum bakeout temperature200 °C with magnets,300 °C without magnets.

PID pumps can be equipped with either standard elements or rare-gas elements:

- Standard elements: PID pumps are made of standard 25 L/s elements (12.5 L/s for PID 50), easily interchangeable and proven to be the most reliable and robust.A standard pumping element is made of a cathode consisting of two getter-material (titanium) plates and an anode made of multiple stainless-steel cylinders (see schematic).

- Rare-gas elements: Since rare gases do not react with titanium, they are pumped by burial. Pumping speeds on these gases are therefore reduced. If the gas load is high, the pumps must be equipped with special rare-gas elements combining different materials. These elements considerably increase pumping speed on rare gases.

PIDG-SERIES ION PUMPS:

PIDG combined pumps include a diode ion pump from the PID series plus titanium sublimation pumping.

Operating principle:

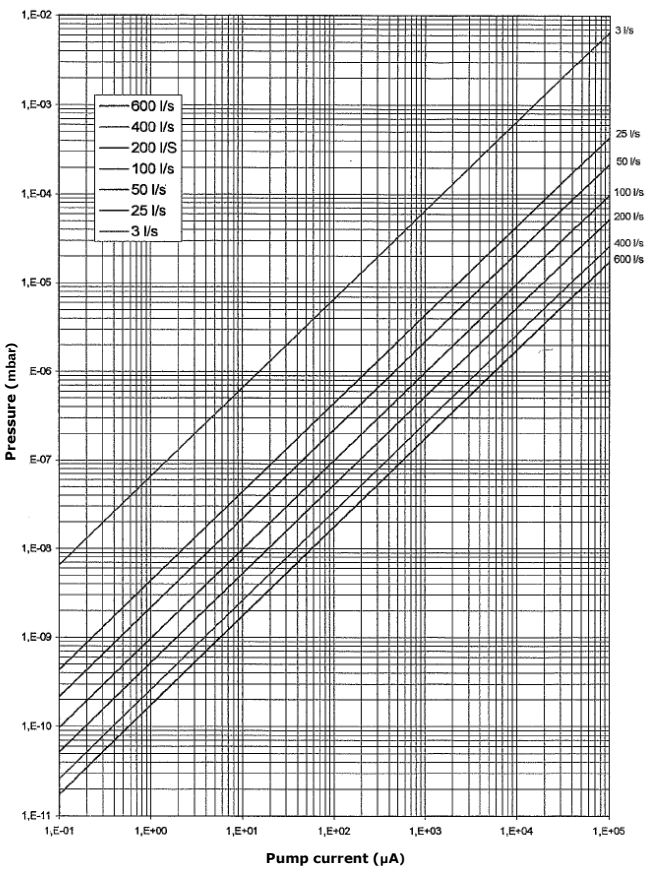
- Ion pumping:

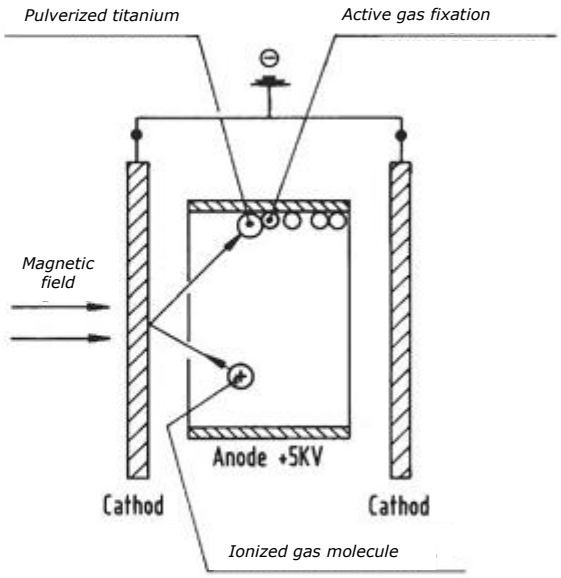
With the same design as PID pumps, PIDG pumps provide permanent base pumping of a system and require almost no maintenance.

- Titanium sublimation pumping:

Titanium sublimation provides a very high additional pumping speed. If sublimation is sufficient, the pumping speed delivered by the sublimator is proportional to the deposition surface and depends on the wall temperature. Internal pumping speeds above 2000 L/s can be achieved.

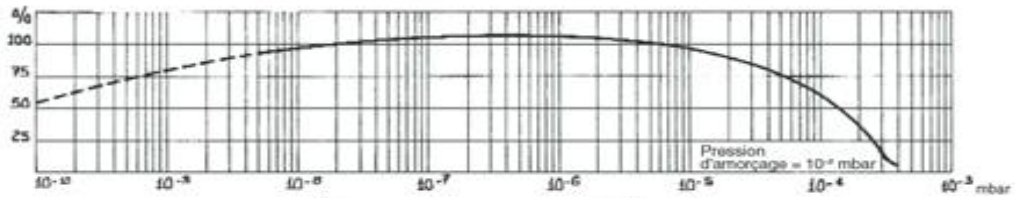
Pumping speed increases as the cold-panel temperature decreases. For more efficient hydrogen pumping, the cold panel must be cooled with liquid nitrogen to improve condensation.





PUMPING SPEED :

Pumping speeds are given for reference only, as they depend on the conditioning of the pump and the composition of the gas mixture being pumped.
The values below refer to measurements made according to ISO standards.
The maximum throughput (number of molecules pumped per second) is generally obtained around a pressure of 5×10^{-6} mbar.



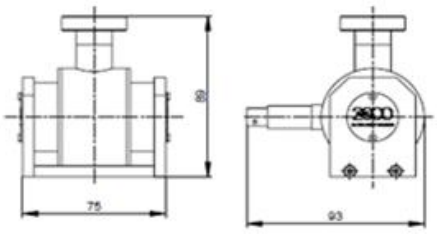
Nitrogen pumping speed

GAS	Hydrogen	Dry air	Nitrogen	Water vapor	Carbon monoxide	Light hydrocarbons	Oxygen	Helium	Argon
Standard elements	200	120	100	100	100	90–160	60	10	1
Rare-gas elements	200	80	90	90	90	90–160	55	35	30

Air pumping speed as a percentage of the pump's nominal pumping speed

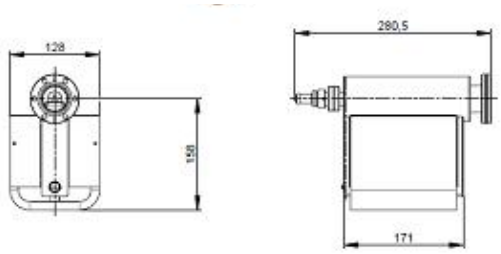
The pumping speed for dry air is slightly higher than for nitrogen.
However, it is not recommended to operate the pumps continuously at air pressures above 5×10^{-6} mbar, as instabilities may occur due to the argon content of air.
If such operation is required, special rare-gas elements must be installed.

PID 3



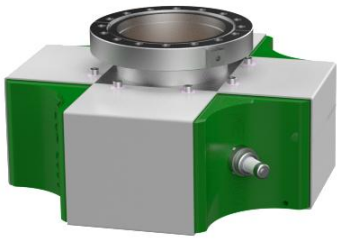
Nominal pumping speed	3 L/s	**Bakeout**	< 80 °C < 450°C without magnets
Number of elements	1	**Inlet flange**	16CF or 40CF
Recommended power supply	APIV - ref : 302 121	**Weight**	0.85 Kg
Standard model reference	**301 132**		

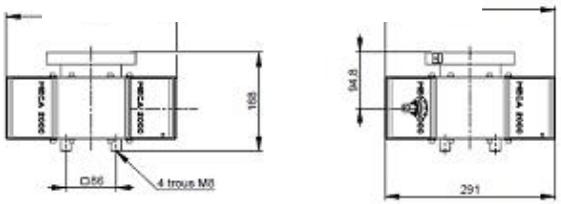
PID 25 – PID 25N



Nominal pumping speed	25 L/s
Number of elements	1
Recommended power supply	APIV - ref : 302 121
Bakeout	Heating rod
Inlet flange	40CF
Weight	12 Kg
Standard model reference	**300 358**
Rare-gas model reference	**300 822**

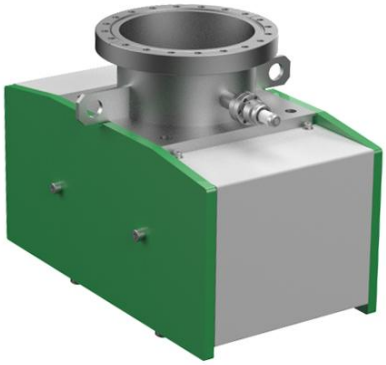
PID 50 – PID 50N

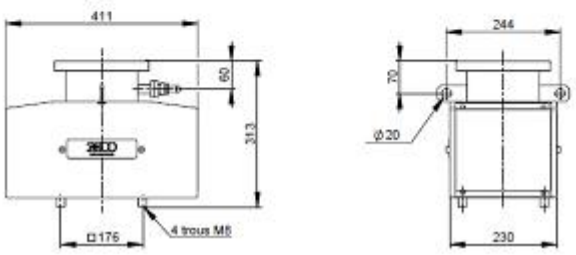




Nominal pumping speed	50 L/s
Number of elements	4
Recommended power supply	APIV - ref : 302 121
Bakeout	EP50 oven
Inlet flange	100CF
Weight	30 Kg
Standard model reference	**300 359**
Rare-gas model reference	**300 823**

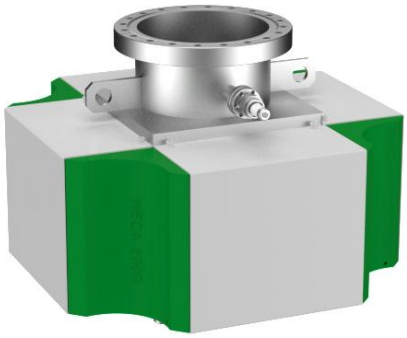
PID 100 – PID 100N

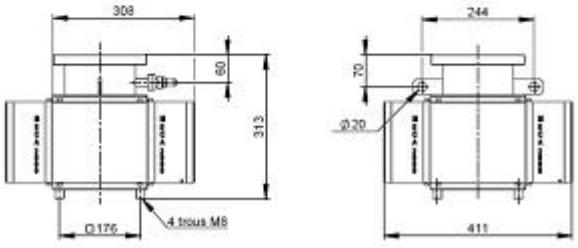




Nominal pumping speed	100 L/s
Number of elements	4
Recommended power supply	APIV - ref : 302 121
Bakeout	4 x BC
Inlet flange	160CF
Weight	58 Kg
Standard model reference	**300 360**
Rare-gas model reference	**300 824**

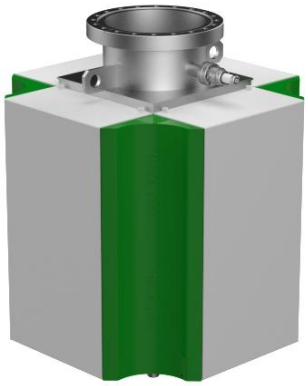
PID 200 – PID 200N

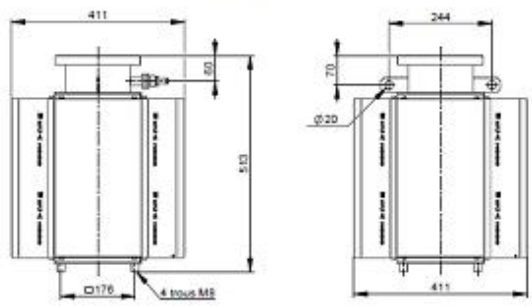




Nominal pumping speed	200 L/s
Number of elements	8
Recommended power supply	APIV - ref : 302 121
Bakeout	EP200 oven
Inlet flange	160CF
Weight	65 Kg
Standard model reference	**300 361**
Rare-gas model reference	**300 825**

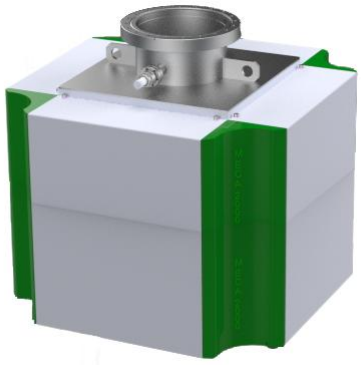
PID 400 – PID 400N

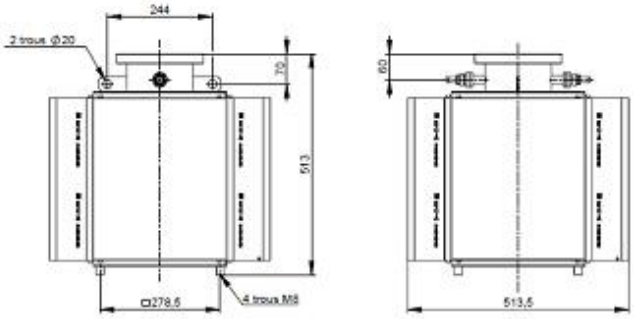




Nominal pumping speed	400 L/s
Number of elements	16
Recommended power supply	APIV - ref : 302 121
Bakeout	EP400 oven
Inlet flange	160CF
Weight	150 Kg
Standard model reference	**300 362**
Rare-gas model reference	**300 826**

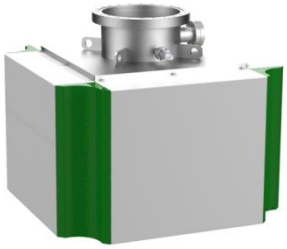
PID 600 – PID 600N

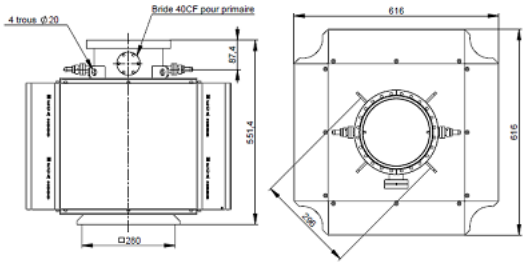




Nominal pumping speed	600 L/s
Number of elements	24
Recommended power supply	APIV - ref : 302 121
Bakeout	EP600 oven
Inlet flange	160CF
Weight	165 Kg
Standard model reference	**300 363**
Rare-gas model reference	**300 827**

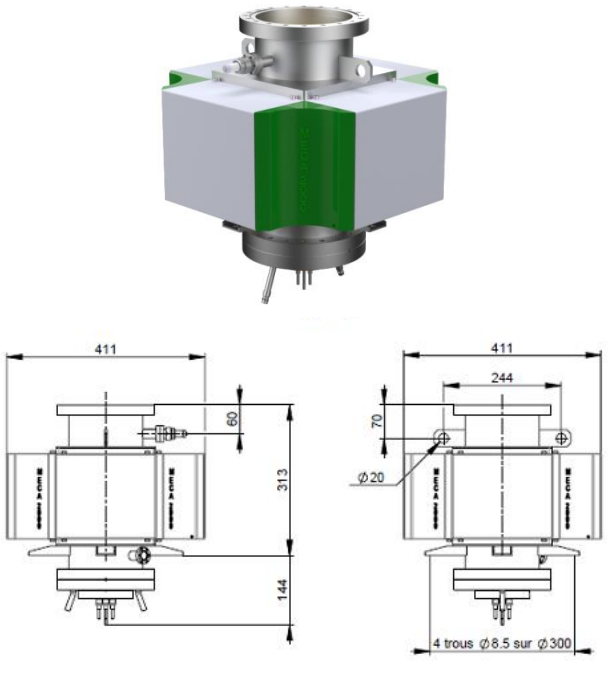
PID 800 – PID 800N





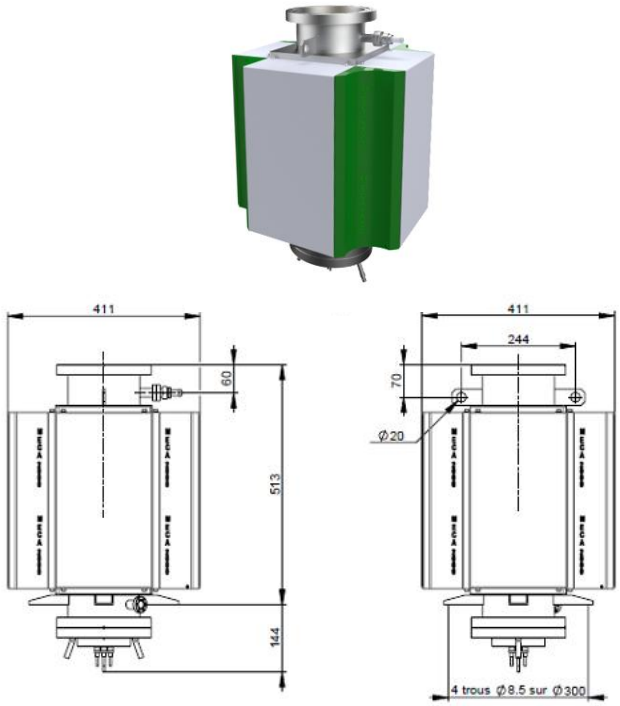
Nominal pumping speed	800 L/s
Number of elements	32
Recommended power supply	APIVD - ref : 302 122
Bakeout	EP800 oven
Inlet flange	200CF
Weight	251 Kg
Standard model reference	**302 813**
Rare-gas model reference	**300 828**

PIDG 1020 – PIDG 1020N



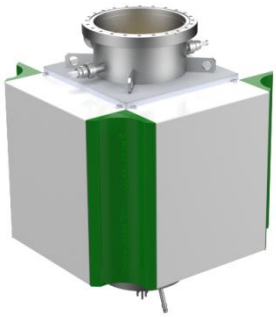
Nominal pumping speed	1000 L/s
Number of elements	8
Recommended power supply	APIV / ASTI 7
Bakeout	EP200
Inlet flange	160CF
Weight	85 Kg
Standard model reference	**300 385**
Rare-gas model reference	**301 843**

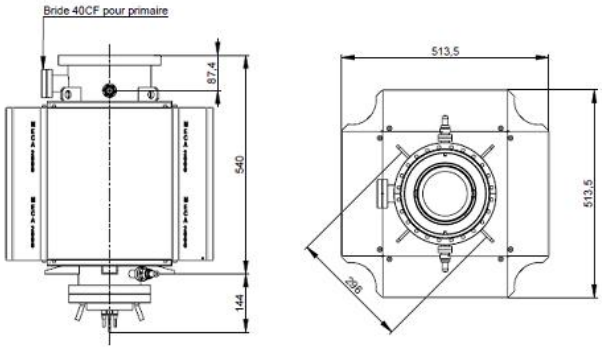
PIDG 1040 – PIDG 1040N



Nominal pumping speed	1500 L/s
Number of elements	8
Recommended power supply	APIV / ASTI 7
Bakeout	EP400
Inlet flange	160CF
Weight	170 Kg
Standard model reference	**301 847**
Rare-gas model reference	**301 845**

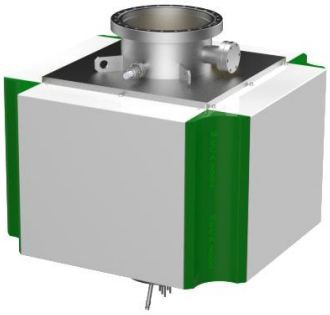
PIDG 1060 – PIDG 1060N

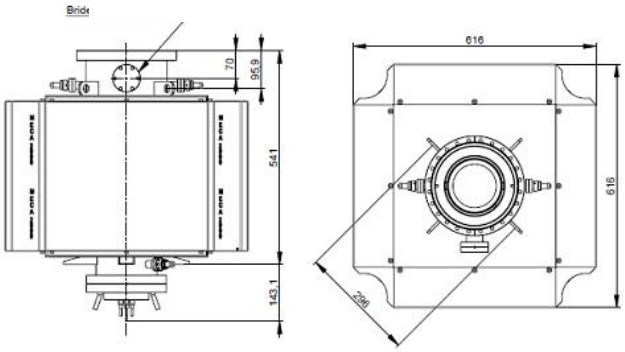




Nominal pumping speed	1600 L/s
Number of elements	24
Recommended power supply	APIV / ASTI 7
Bakeout	EP600
Inlet flange	200CF
Weight	230 Kg
Standard model reference	**302 780**
Rare-gas model reference	**302 964**

PIDG 1080 – PIDG 1080N





Nominal pumping speed	1800 L/s
Number of elements	32
Recommended power supply	APIV / ASTI 7
Bakeout	EP800
Inlet flange	200CF
Weight	260 Kg
Standard model reference	**302 814**
Rare-gas model reference	**302 965**

ION PUMPS – AFTER-SALES SERVICE: SPARE PARTS AND REGENERATION

SPARE PARTS		
Model	**Description**	**Reference**
EPI 12	Standard 12,5 L/s pumping element	300 367
EPI 12 N	12,5 L/s rare-gas pumping element	300 368
EPI 25	Standard 25 L/s pumping element	300 365
EPI 25N	25 L/s rare-gas pumping element	300 366
PMHT	High-voltage terminal on 16CF flange	300 406
PBHT	Connector for high-voltage terminal	300 463

REGENERATION	
Description	**Reference**
1st Level: Chemical cleaning – Replacement of alumina parts and HV connector – Bakeout	590 001
2nd Level: Chemical cleaning – Replacement of complete pumping elements and HV connector – Bakeout	590 002

ION PUMPS POWER SUPPLIES

The high-voltage power supply (3 kV to 7 kV) for ion pumps is a modular unit designed to meet demanding operational requirements.
The APIVD model was developed to allow the user to operate two pumps simultaneously or independently, with individual current and pressure readings and adjustable setpoints.
These supplies automatically convert the ion-pump current reading into pressure (10^{-10} mbar range).The base unit is a half-rack enclosure containing a high-voltage board for diode ion pumps from 25 L/s to 400 L/s.

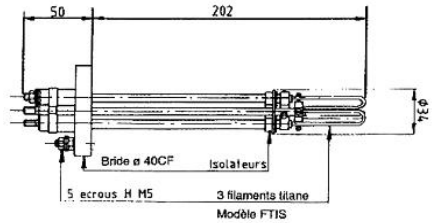
SPECIFICATIONS :

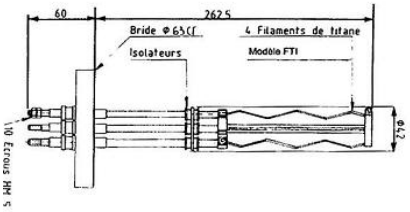
- Input voltage: 220 V / 50 Hz
- Dimensions: ½ standard 19-inch rack
(H: 177, W: 211.4, D: 440)
- Front-panel readings:
  - Output voltage
  - Pressure
  - Current
- Output voltage: adjustable between 3000 V and 7000 V

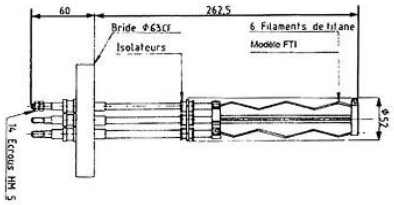
Model	Description	Reference
APIV150	150 W high-voltage power supply	580 201
APIV400	400 W high-voltage power supply	302 121
APIV400D	High-voltage power supply for operating two ion pumps	302 122
CPHTF	High-voltage cable between power supply and ion pump	302 120

TITANIUM SUBLIMATION PUMPING

FILAMENT HOLDERS / TITANIUM SUBLIMATOR







Model	Reference
PFT.3	301 137
PFT.4	300 389
PFT.6	300 390

FILAMENTS FOR SUBLIMATORS

Model	Description	Reference
FTIS 30	Pack of 30 titanium filaments for PFT 3	301 867
FTI 12	Pack of 12 titanium filaments for PFT 4 et PFT 6	300 391
FTI 50	Pack of 50 titanium filaments for PFT 4 et PFT 6	300 392

TITANIUM SUBLIMATION POWER SUPPLY

The titanium sublimation power supply is designed to provide the current needed to heat the filaments used in the filament holders.A front-panel timer allows the sublimation interval and sublimation duration to be set.A 5-position switch makes it possible to select the active filament or let the power supply automatically control the sublimation sequence.

- Input voltage: 220 V / 50 Hz
- Sublimation time: 1 or 2 minutes
- Interval between sublimations: 1 minute to 99 hours
- Current: automatic regulation
- Dimensions: standard 19-inch rack (H: 88, W: 482.4, D: 370)

Model	Description	Reference
ASTI 7	Universal power supply for titanium sublimators	**301 938**
CABLE HI	High-current cable – 6 meters	**301 100**

BAKEOUT EQUIPMENT FOR ION PUMPS

These bakeout devices are designed to ensure the maintenance and regeneration of ion pumps to preserve their initial performance.

Periodic bakeout at temperatures around 150 °C removes water vapor and maintains an excellent ultimate pressure while allowing the pump to operate on its own.

There are two types of bakeout equipment for ion pumps:

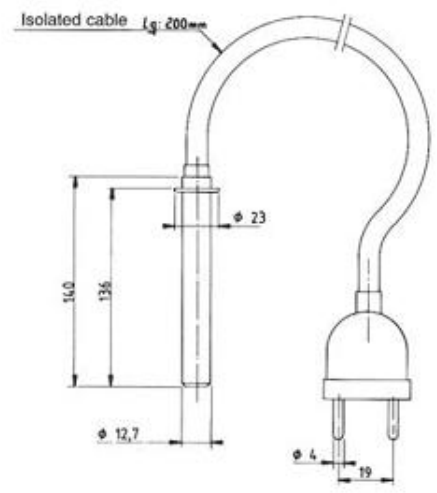
- BC heating rods: for 25 L/s and 100 L/s pumps

Installed in dedicated tubes: 1 rod for 25 L/s pumps, 4 rods for 100 L/s pumps

- EP insulated ovens: for ion pumps from 50 L/s to 800 L/s

These ovens are placed around the pump and ensure a uniform temperature between 150 °C and 200 °C

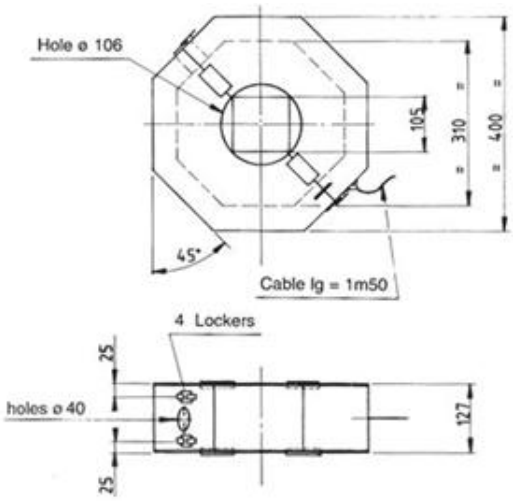
HEATING ROD : Model BC



Electric specifications : 220 V, 75 W

Reference : 300 369

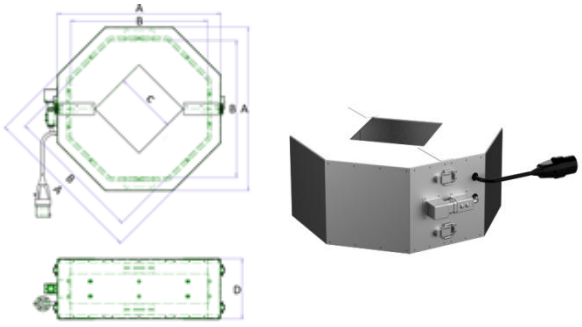
OVEN FOR PID 50 : Model EP50



Electric specifications : 220 V, 300 W

Reference : 300 370

OVENS FOR PID 200 à PID 600

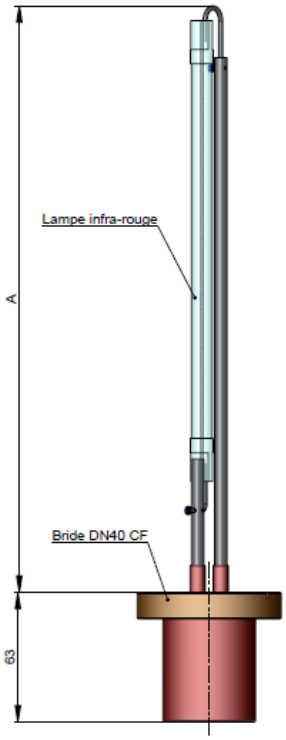


Model	EP 200	EP 400	EP 600
A	550	550	600
B	460	460	520
C	210	210	312.5
D	200	400	400
Electric spec.	220 V, 400 W	220 V, 600 W	220 V, 800 W
Reference	300 371	300 372	300 887

HEATING TAPES AND CABLES

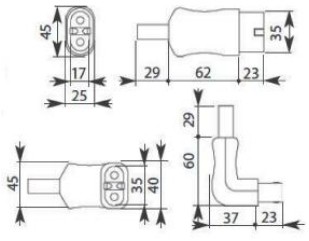
HEATING TAPES AND CABLES		
Model	**Description**	**Reference**
RC	Heating tape 2 m (220 V, 500W)	300 631
RCL	Heating tape 4 m (220 V, 1000 W)	300 955
RCT 2	Heating cable for bakeout of transfer rods, 2 m length (220 V, 120 W)	302 565
RCT 4	Heating cable for bakeout of transfer rods, 4 m length (220 V, 240 W)	302 566

BAKEOUT LAMPS



Model	A	Electric specs	Reference
LIEC 05	165	110 V, 500 W	300 819
LIEC 14	270	114 V, 1200 W	300 454

LI 05.01	Replacement halogen lamp, 500 W	300 820
LI 14.01	Replacement infrared lamp, 1200 W	300 455



Ceramic female connector:
- 2-pole + ground female connector, 400 Vac, 25 A
- Ø6 mm pins, 19 mm spacing, silver-plated contacts
- Head: ceramic/aluminum
- Maximum operating temperature: 300 °C

VALVES

RIGHT-ANGLE VITON-SEALED VALVES: VAV AND VAVP RANGE

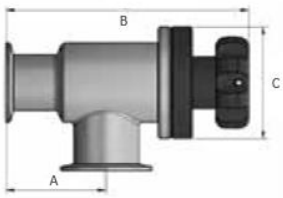
These valves, of simple and robust construction, can be used both in ultra-high-vacuum systems and in primary vacuum lines. They are suitable for installations requiring pressures in the 10^{-9} mbar range.

They are manufactured according to the best UHV technologies, ensuring very low leak and outgassing rates. The body and the actuator bellows are made of stainless steel.

Specifications :

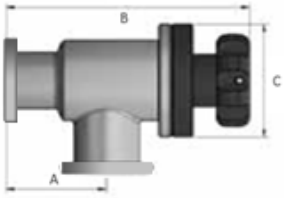
Flange :	KF or CF	
Materials :	Body :	SS 304 Electropoli
	Bellows :	SS 316L
	Poppet seal	VITON (other on request)
	Body seal :	VITON
Differential pressure :	1,4 bar	
Operating temperature :	< 150 °C continuous	
	< 200 °C intermittent	
Operating pressure :	> $1,10^{-9}$ Torr	

MANUAL RIGHT-ANGLE VITON-SEALED VALVES – FLANGE KF – VAV



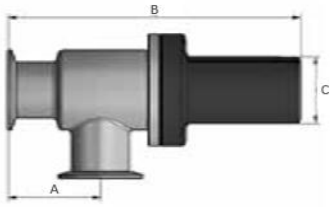
Model	Flange	A	B	C	Reference
VAV 16K	KF16	51	110.8	62	**710 001**
VAV 25K	KF25	54.6	115.8	62	**710 002**
VAV 40K	KF40	61	146.9	77	**710 003**
VAV 50K	KF50	87.4	184.3	94	**710 004**

MANUAL RIGHT-ANGLE VITON-SEALED VALVES – FLANGE CF – VAV



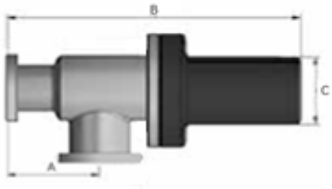
Model	Flange	A	B	C	Reference
VAV 16C	CF16	51	110.8	62	**710 011**
VAV 40C	CF40	61	146.9	77	**710 012**

PNEUMATIC RIGHT-ANGLE VITON-SEALED VALVES – FLANGE KF – VAVP



Model	Flange	A	B	C	Reference
VAVP 16K	KF16	51.6	149.8	38	**710 101**
VAVP 25K	KF25	54.6	154.8	38	**710 102**
VAVP 40K	KF40	61	192.2	46	**710 103**
VAVP 50K	KF50	87.4	236.4	56	**710 104**

PNEUMATIC RIGHT-ANGLE VITON-SEALED VALVES – FLANGE CF – VAVP



Model	Flange	A	B	C	Reference
VAVP 16C	CF16	51.6	149.8	38	**710 111**
VAVP 40C	CF40	61	192.2	46	**710 112**

INLINE VITON-SEALED VALVES: VAVL AND VAVLP RANGE

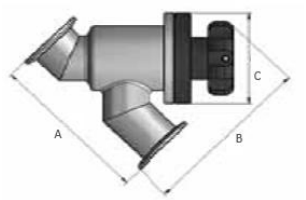
These valves, of simple and robust construction, can be used both in ultra-high-vacuum systems and in primary vacuum lines. They are suitable for installations requiring pressures in the 10^{-9} mbar range.

They are manufactured using proven UHV technologies, ensuring very low leak and outgassing rates. The body and actuator bellows are made of stainless steel.

Specifications :

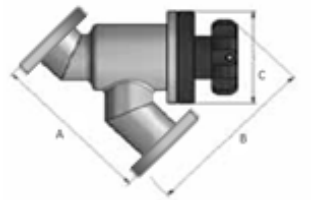
Flange :	KF	
Materials :	Body :	SS 304 Electropoli
	Bellows :	SS 316L
	Poppet seal	VITON (other on request)
	Body seal :	VITON
Differential pressure :	1,4 bar	
Operating temperature :	< 150 °C continuous	
	< 200 °C intermittent	
Operating pressure :	> $1,10^{-9}$ Torr	

MANUAL INLINE VITON-SEALED VALVES – FLANGE KF – VAVL



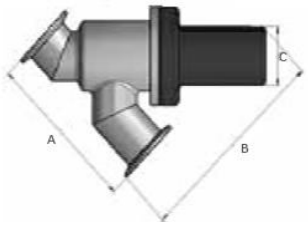
Modèle	Bride	A	B	C	Référence
VAVL 16K	KF16	101.6	96.8	62	**711 001**
VAVL 25K	KF25	106.7	102.9	62	**711 002**
VAVL 40K	KF40	130	140.1	77	**711 003**
VAVL 50K	KF50	177.8	107.5	94	**711 004**

MANUAL INLINE VITON-SEALED VALVES – FLANGE CF– VAVL



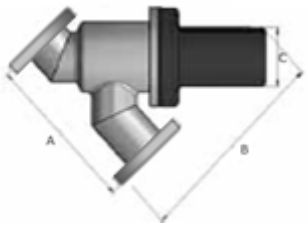
Modèle	Bride	A	B	C	Référence
VAVL 16C	KF16	101.6	96.8	62	**711 011**
VAVL 40C	KF40	130	140.1	77	**711 012**

PNEUMATIC INLINE VITON-SEALED VALVES – FLANGE KF – VAVP



Modèle	Bride	A	B	C	Référence
VAVLP 16K	KF16	51.6	149.8	38	**711 101**
VAVLP 25K	KF25	54.6	154.8	38	**711 102**
VAVLP 40K	KF40	61	192.2	46	**711 103**
VAVLP 50K	KF50	87.4	236.4	56	**711 104**

PNEUMATIC INLINE VITON-SEALED VALVES – FLANGE CF – VAVP



Modèle	Bride	A	B	C	Référence
VAVLP 16C	KF16	51.6	149.8	38	**711 111**
VAVLP 40C	KF40	61	192.2	46	**711 112**

RIGHT-ANGLE ALL-METAL VALVES: VUV RANGE

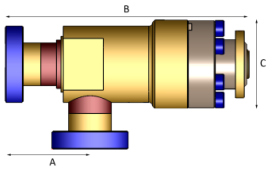
VUV-series valves are fully metallic and fully dismountable. Their particularity is a closing poppet coated with a layer of gold, providing a much longer lifetime than standard all-metal poppets.

Their UHV design uses only specially selected and treated metals. They are used from atmospheric pressure down to a few 10^{-11} mbar, with a leak rate below 5×10^{-11} mbar·L/s.

Specifications :

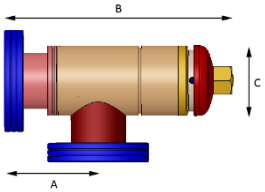
Flanges :	CF
Materials :	Entirely in stainless steel 304L Gold plating of the closing valve
Leak rate :	5.10^{-11} mbar.L/s
Operating pressure :	$< 10^{-10}$ mbar
Bakeout temperature :	300°C (closed) - 400°C (open)

MANUAL RIGHT-ANGLE ALL-METAL VALVES – FLANGE CF – VUV 16 - GOLD VALVE



Model	Flange	A	B	C	Reference
VUV 16	CF16*	38	109	39.5	**301 117**
* brides tournantes					

MANUAL RIGHT-ANGLE ALL-METAL VALVES – FLANGE CF – VUV 40 / 63 - GOLD VALVE



Model	Flange	A	B	C	Reference
VUV 40	CF40*	65	171	48.3	**300 343**
VUV 63	CF63*	102	287	76.1	**300 344**
* brides tournantes					

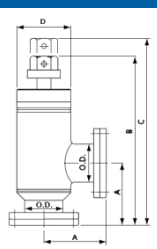
RIGHT-ANGLE ALL-METAL VALVES: VUVS RANGE

VUVS-series valves are made entirely of metal and offered at a very attractive price. They are used in the same way as VUV valves for systems operating under ultra-high vacuum.

Specifications :

Flanges :	CF
Materials :	Entirely in stainless steel 304L
Leak rate :	$8{,}7.10^{-11}$ mbar.L/s
Operating pressure :	$< 10^{-10}$ mbar
Bakeout temperature :	200°C

MANUAL RIGHT-ANGLE ALL-METAL VALVES – FLANGE CF – VUVS



Model	Flange	OD	A	B	C	D	Reference
VUVS 16	CF16	19.1	38.1	122.2	133.0	38.1	**721 001**
VUVS 40	CF40	38.1	62.5	170.0	189.0	54.0	**721 002**

DIRECT-THROUGH ALL-METAL VALVES: VUVD RANGE

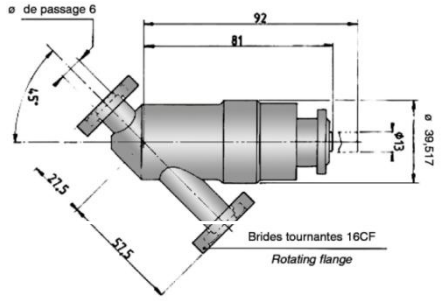
With the same design as VUV-series valves, they retain the same characteristics, with the added advantage of allowing a beam or a sample to pass directly through the valve when it is open.

The passage diameter is identical to that of the tubing.

Specifications :

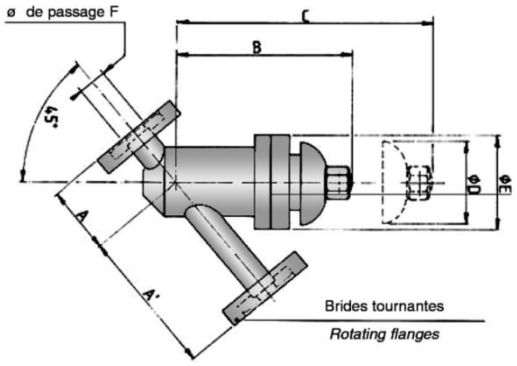
Flanges :	CF
Materials :	Entirely in stainless steel 304L Gold plating of the closing valve
Leak rate :	5.10^{-11} mbar.L/s
Operating pressure :	< 10^{-10} mbar
Bakeout temperature :	300°C (closed) - 400°C (open)

DIRECT-THROUGH ALL-METAL VALVES - FLANGE CF
VUVD 6



Model	VUVD 6
Flange	16CF
Conductance	1 L/s
Reference	300 649

DIRECT-THROUGH ALL-METAL VALVES - FLANGE CF
VUVD 14 ET VUVD 40

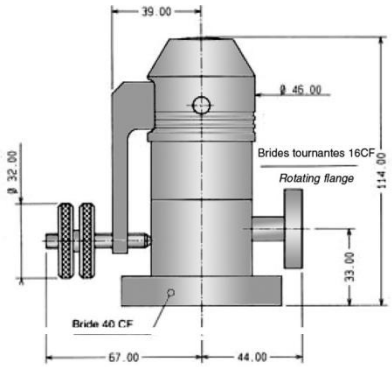


Model	VUVD 14	VUVD 40
Flange	40CF	40CF
Conductance	1.5 L/s	35 L/s
A	50	52
A'	110	112
B	122	215
C	145	270
D	48.3	76.1
E	70	114.5
F	14	35
Reference	300 650	300 595

ADJUSTABLE LEAK VALVE: VAFU

The VAFU valve is equipped with a perfectly flat sapphire mounted on a movable piston that contacts a metal seal. This sealing method eliminates friction and prevents piston deformation.
The sapphire's movement is controlled by a threaded shaft and a lever mechanism providing a mechanical reduction ratio of 13,000:1.

ADJUSTABLE LEAK VALVE - FLANGE CF – VAFU



Model	VAFU
Flanges	40CF / 16CF
Conductance	0.1 L/s
Reference	301 178

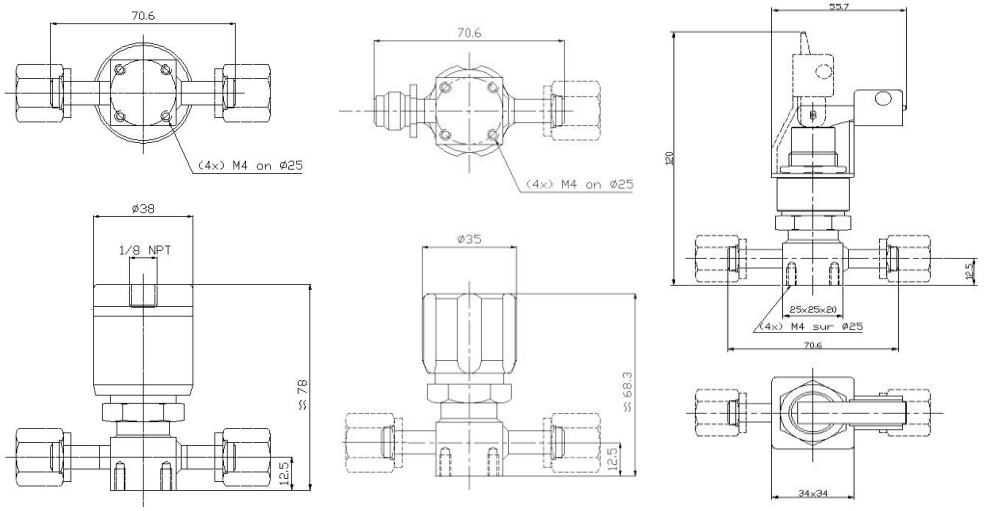
ALL-METAL VALVES – SPARE PARTS

Type	Valve	Reference
Closing poppet	VUV 16	301 984
Closing poppet	VUV 40	300 815
Closing poppet	VUV 63	300 893
Closing poppet + seal	VUV 16 – VUVD 6	301 984
Closing poppet + seal	VUVD 14	301 985
Closing poppet + seal	VUVD 40	301 986
Replacement kit	VAFU	301 988

GAS INJECTION VALVES: VIG

Meca 2000 offers a new range of all-metal 2-way gas-injection valves for vacuum and ultra-high vacuum applications at a very competitive price. These all-metal bellows-sealed valves have a specially designed poppet that allows bakeout up to 150 °C.Three standard versions are available:
•Manual lever valve for process-gas injection
•Pneumatic valve for process-gas injection
•Manual progressive-opening valve for venting vacuum systems

These valves are available with¼ VCR female fittings, or ¼ VCR female (injection side) + plain tube (system side).
This second configuration allows us to supply valves welded onto any CF or KF flange of your choice.



	VIG 14FFP	VIG 14NFP	VIG RP FF	VIG RP NF	VIG LM FF	VIG LM NF
Application	Gaz injection		Return to atmospheric pressure		Injection de gaz	
Inlet fitting	¼ VCR F		¼ VCR F		¼ VCR F	
Outlet fitting	¼ VCR F	Tube	¼ VCR F	Tube	¼ VCR F	Tube
Actuation mode	Pneumatic		Manual 1-turn		Manual lever	
Poppet position	Normally closed					
CV Coefficient	0.28		0.28		0.28	
External leak rate	< 2.10-10 mbar.L/s He		< 2.10-10 mbar.L/s He		< 2.10-10 mbar.L/s He	
Internal leak rate	< 2.10-9 mbar.L/s He		< 2.10-9 mbar.L/s He		< 2.10-9 mbar.L/s He	
Operating temperature	0 to 70 °C		0 to 70 °C		0 to 70 °C	
Bakeout temperature	150°C		150°C		150°C	
Lifetime	1 000 000 cycles		1 000 000 cycles		1 000 000 cycles	
Maximum inlet pressure	15 bars		30 bars		30 bars	
Compressed-air pressure	5 to 6 bars					
Compressed-air fitting	Quick-connect 4 mm					
Reference	**760 101**	**760 102**	**760 201**	**760 202**	**760 301**	**760 302**

CF / ISO / KF

COMPONENTS

CF COMPONENTS

Vinci Technologies offers a complete range of ultra-high-vacuum flanges and fittings that can be baked up to 400 °C. Compliant with international ISO and NFE standards, they are compatible with flanges from any manufacturer applying the same specifications.

CF SEALING

This is a metal-to-metal sealing system between a stainless-steel knife edge (304L or 316L) and a copper gasket.

MAIN ADVANTAGES

All Vinci Technologies ultra-high-vacuum flanges and fittings made of stainless steel (316L and 304L) can be baked up to 400 °C. Their manufacturing procedures provide the characteristics required for ultra-high-vacuum technology.

They can be used on UHV systems reaching pressures below 10^{-11} mbar.

GASKETS

Vinci Technologies also offers a complete range of gaskets:

- From CF16 to CF250
  - ✓ High-quality flat OFHC copper gaskets, precisely machined, cleaned, and packaged to ensure the cleanliness required for UHV applications
  - ✓ Silver-plated OFHC copper flat gaskets, providing improved vacuum tightness after multiple bake-outs; silver plating also prevents oxidation during bake-outs above 200 °C
  - ✓ Viton gaskets, bakeable up to 150 °C, suitable for CF flanges in applications requiring frequent disassembly
- From CF300 to CF800
  - ✓ OFHC copper O-rings
  - ✓ Silver-plated OFHC copper O-rings
  - ✓ Viton O-rings, bakeable up to 150 °C, suitable for frequent disassembly

BOLTING

High-strength stainless-steel bolts ensure proper tightening of metal-to-metal CF flanges, enabling UHV performance.
A suitable lubricant ensures easy disassembly after repeated 400 °C bake-outs.

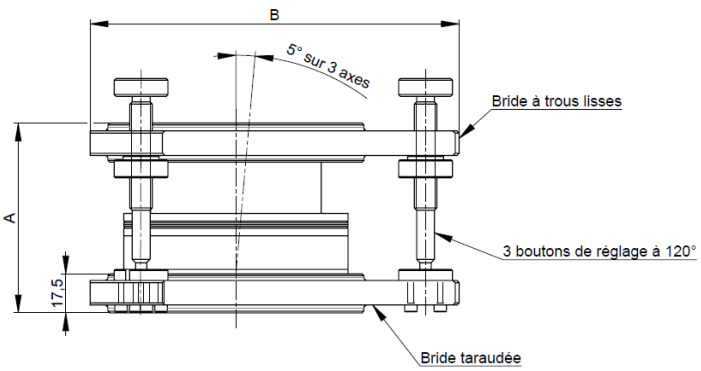
FITTINGS

All Vinci Technologies fittings from CF16 to CF63 are made of 316L stainless steel and feature a rotatable flange for easier assembly and alignment.
From CF100 and above, all flanges are fixed.

FLEXIBLE ALIGNMENT COUPLINGS

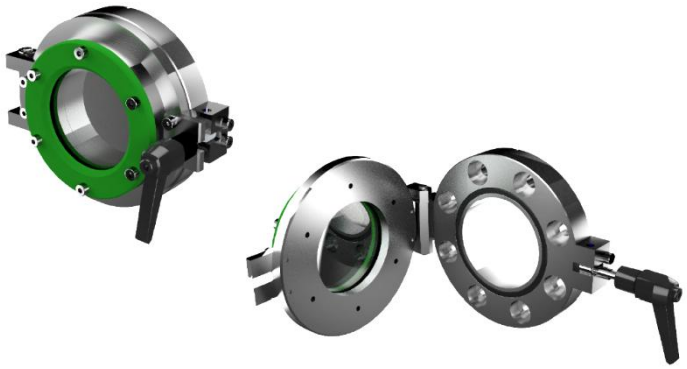
Flexible alignment couplings are used to adjust the angular positioning of a vacuum mechanical component by a few degrees.

They are most commonly used with transfer rods and manipulators to fine-tune the alignment between different elements during a sample transfer.

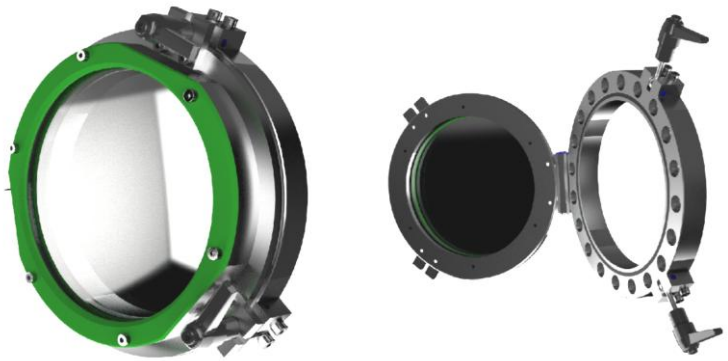
FLEXIBLE ALIGNMENT COUPLING	DN	øint	A	B			Reference
							
	40CF	38.1	65	100			300 962
	63CF	61.1	85	164.5			300 963

QUICK-OPENING VIEWPORTS

Quick-opening viewports are designed to allow rapid introduction of samples into UHV systems, while still offering the possibility to use them as standard observation windows. They are mainly installed on load-lock chambers. The glass sealing is ensured by Viton gaskets.

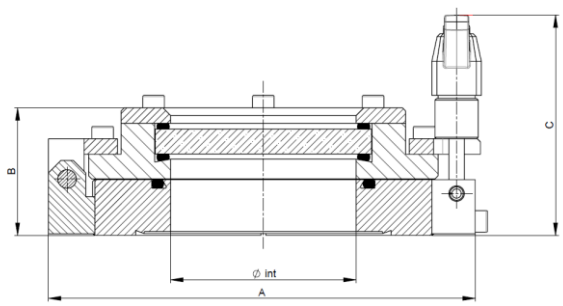


HOR DN63CF & DN100CF



HOR DN160CF & DN200CF

TECHNICAL SPECIFICATIONS	
Bake-out temperature	150°C
Window material	Kodial
Ultimate pressure	< 10^{-8} mbar
2 handles	DN160 & DN200

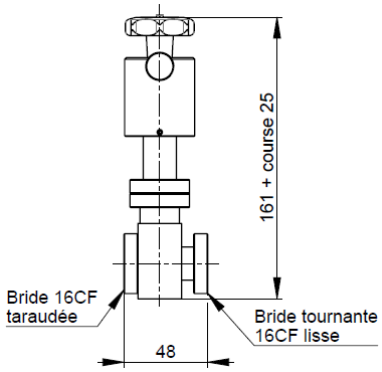
QUICK-OPENING VIEWPORT	Model	A	B	C	øint		Reference
	HOR 63	138	41	71	60		301 382
	HOR 100	176	44	74	100		301 267
	HOR 160	216.5	54	76	150		301 383
	HOR 200	267	57	79	200		301 384

MECHANICAL-HANDLE VIEWPORT SHUTTERS

The frequent need to protect or block viewports from any evaporation or light sources coming from UHV chambers has led Vinci Technologies to develop a complete series of full-coverage viewport shutters, entirely made of stainless steel and bakeable up to 300 °C.

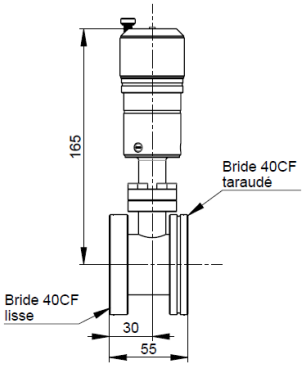
All these shutters are equipped with a removable protection glass, allowing easy cleaning.

VIEWPORT SHUTTER– CF16

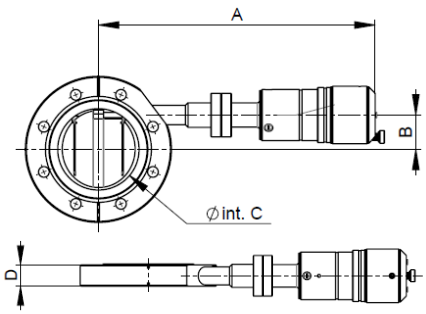


Model	Flange	Reference
CHM 16	CF16	301 164

VIEWPORT SHUTTER – CF40



Model	Flange	Reference
CHM 40	CF40	300 806

VIEWPORT SHUTTER	Model	Flange	A	B	C	D	Reference
	CHM 63	CF63	216	26.75	63.5	18	300 927
	CHM 100	CF100	216	45	100	24.8	301 037
	CM 160	CF160	230.5	72.3	155	22.2	301 177

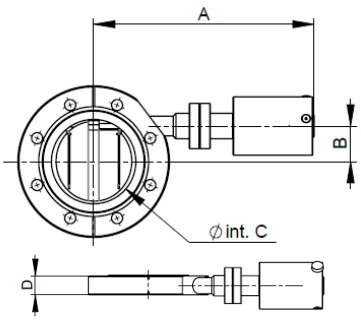
MAGNETIC-HANDLE VIEWPORT SHUTTERS

The frequent need to protect or block viewports from any evaporation or light sources coming from UHV chambers has led Vinci Technologies to develop a complete series of full-coverage viewport shutters, entirely made of stainless steel and bakeable up to 300 °C.

All these shutters are equipped with a removable protection glass, allowing easy cleaning.

VIEWPORT SHUTTER– CF40

Model	Flange	Reference
CHM 40-L	CF40	

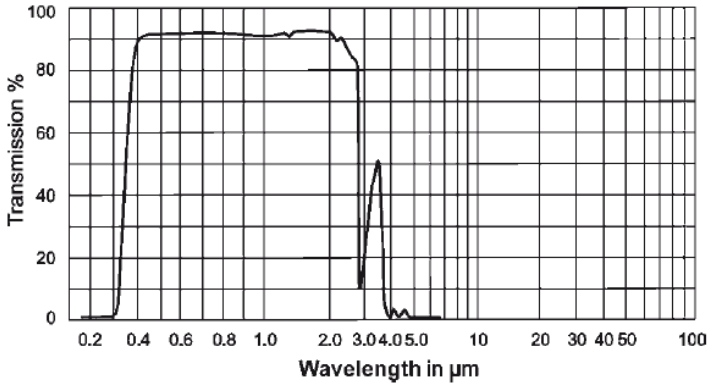
VIEWPORT SHUTTER	Model	Flange	A	B	C	D	Reference
	CHM 63-L	CF63	125	26.75	63.5	18	912 202
	CHM 100-L	CF100					912 203
	CM 160-L	CF160					912 204

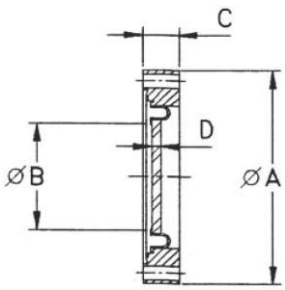
CF VIEWPORTS

Designed for optical observations and measurements in ultra-high-vacuum chambers, Meca 2000 offers a complete range of viewports covering the entire spectrum, from infrared to ultraviolet.

ZERO-LEVEL VIEWPORT – BOROSILICATE

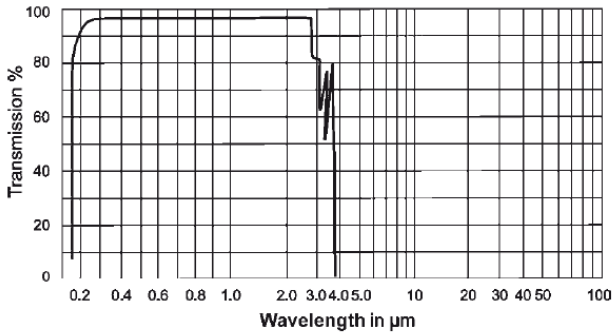
- Specific and unique mounting designed for ultra-high-vacuum
- Bake-out temperature: 350 °C
- Allowed thermal ramp rate: 5 °C per minute

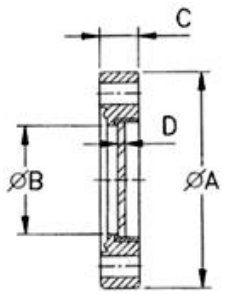


ZERO-LEVEL VIEWPORT - KODIAL	DN	A	B	C	D		Reference
	16CF	34	16	12.7	1.5		300 322
	40CF	70	38	12.7	3.0		300 323
	63CF	114	63	17.4	3.5		300 324
	100CF	152	90	19.9	6		300 325
	160CF	203	136	22.3	8		300 326

QUARTZ VIEWPORT

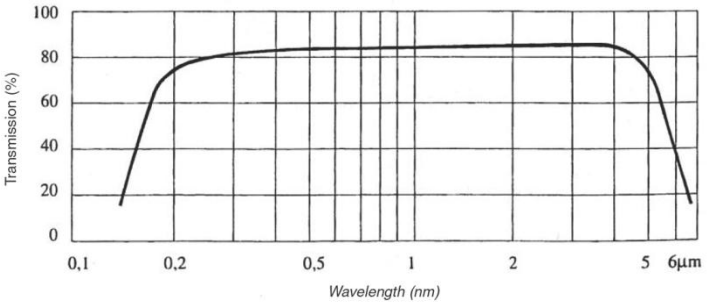
- Synthetic fused-silica glass
- Metal seal: kovar transition (non-magnetic)
- Bake-out temperature: 350 °C
- Allowable temperature variation: 2–3 °C per minute
- Pressure difference: 1 bar max
- The lowest pressure must always be on the knife-edge side

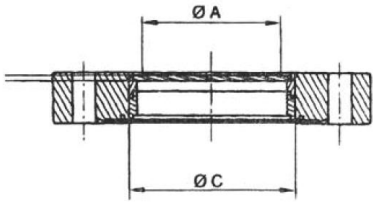


QUARTZ VIEWPORT	DN	A	B	C	D		Reference
	40CF	70	38	12.7	3.5		302 414
	63CF	114	63	17.4	4.5		302 415
	100CF	152	89	19.9	6.0		302 416
	160CF	203	136	22.3	9.5		301 956

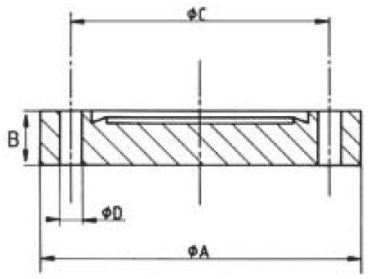
SAPPHIRE VIEWPORT

- Metal seal: titanium brazed to 304L stainless steel
- Non-magnetic
- Bake-out temperature: 400 °C
- Allowable temperature variation: 5 °C per minute
- Crystal orientation: perpendicular to the C-axis

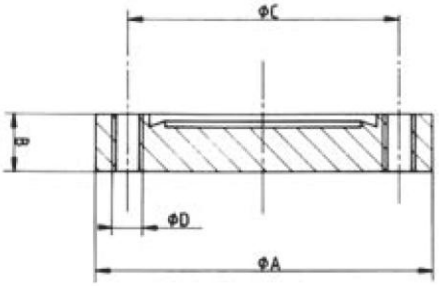


SAPHIRRE VIEWPOR	DN	A		C			Reference
	16CF	15		18			302 417
	40CF	34		37			302 418
	63CF	56		60			302 419

FLANGES

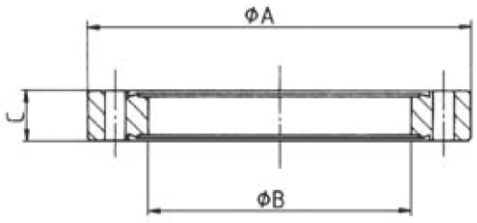
BLANK FLANGE 316L	DN	A	B	C	D	E	Reference
	16CF	34	8	27	4.4	6	300 262
	40CF	70	13	58.7	6.6	6	300 263
	63CF	114	18	92.1	8.4	8	300 264
	100CF	152	21	130.2	8.4	16	300 265
	160CF	202	22	181	8.4	20	300 266
	200CF	253	25	231.8	8.4	24	300 267
	250CF	306	26	284	8.4	32	300 565

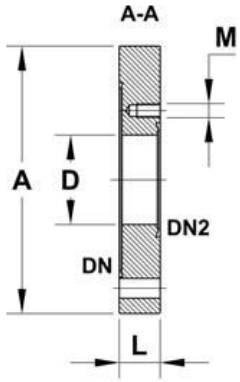
E: number of holes

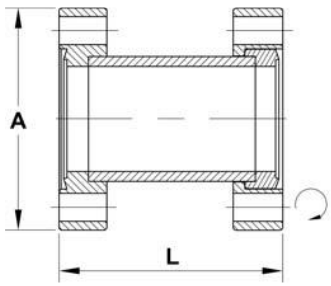
TAPPED BLANK FLANGE 316L	DN	A	B	C	D	E	Reference
	16CF	34	8	27	M4	6	300 481
	40CF	70	13	58.7	M6	6	300 482
	63CF	114	18	92.1	M8	8	300 483
	100CF	152	21	130.2	M8	16	300 484
	160CF	202	22	181	M8	20	300 485
	200CF	253	25	231.8	M8	24	300 486
	250CF	306	26	284	M8	32	300 567

E: number of holes

FITTINGS AND ADAPTERS

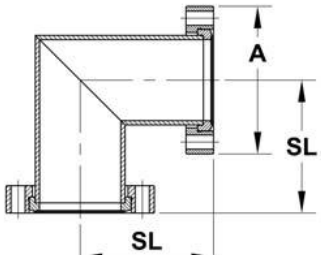
SYMMETRICAL ADAPTER 316L	DN	A	B	C			Reference
	16CF	34	17	8			300 226
	40CF	70	41	13			300 227
	63CF	114	72	18			300 228
	100CF	152	104	21			300 229
	160CF	202	154	22			300 230
	200CF	253	206	25			300 231

ASYMMETRICAL ADAPTER 316L	DN	DN2	A	D	L	M	Reference
	40	16	70	17	13	M4	300 244
	63	16	114	17	18	M4	300 245
	63	40	114	41	18	M6	300 246
	100	40	152	41	21	M6	300 247
	100	63	152	72	21	M8	300 248
	160	40	202	41	22	M6	300 249
	160	63	202	72	22	M8	300 250
	160	100	202	104	22	M8	300 251
	200	100	253	104	25	M8	300 254
	200	160	253	154	25	M8	300 255

STRAIGHT FITTING 304L	DN	L	A				Reference
	16CF	76	34				916 101
	40CF	126	70				916 102
	63CF	210	114				916 103
	100CF	270	152				916 104
	160CF	334	203				916 105
	200CF	334	254				916 106

1 Rotatable flange

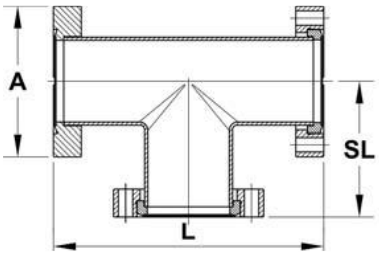
ELBOW 304L



DN	A	SL				Reference
16CF	34	38				916 301
40CF	70	63				916 302
63CF	114	105				916 303
100CF	152	135				916 304
160CF	203	167				916 305
200CF	254	203				916 306

2 Rotatable flanges

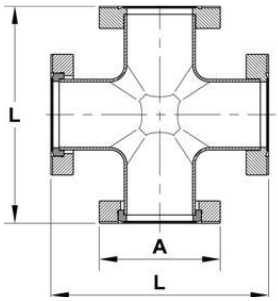
TEE 304L



DN	A	L	SL			Reference
16CF	34	76	38			916 401
40CF	70	126	63			916 402
63CF	114	210	105			916 403
100CF	152	270	135			916 404
160CF	203	334	167			916 405
200CF	254	406	203			916 406

2 Rotatable flanges

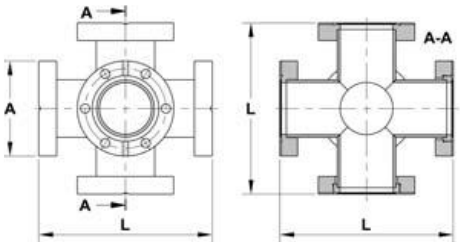
CROSS 304L



DN	A	L				Reference
16CF	34	76				916 501
40CF	70	126				916 502
63CF	114	210				916 503
100CF	152	270				916 504
160CF	203	334				916 505
200CF	254	406				916 506

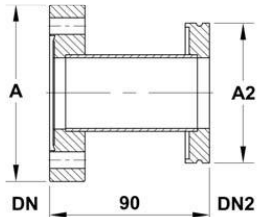
2 Rotatable flanges

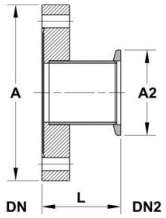
6-WAY EQUAL CROSS 304L



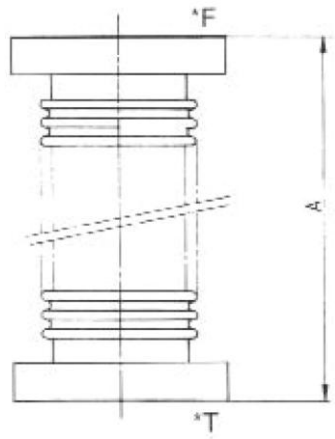
DN	A	L				Reference
16CF	34	76				916 551
40CF	70	126				916 552
63CF	114	210				916 553
100CF	152	270				916 554
160CF	203	334				916 555

F: Fixed / T: Rotatable up to DN63

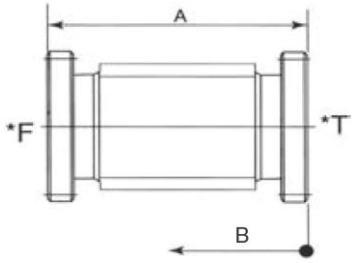
FLANGE CONNECTOR CF/ISO K 304L	DN	DN2	A	A2			Reference
	63CF	63K	114	95			301 290
	100CF	100K	152	130			301 291
	160CF	160K	203	180			301 292

FLANGE CONNECTOR CF/KF 304L	DN	DN2	A	A2	L		Reference
	40CF	16KF	70	30	36		300 840
	40CF	25KF	70	40	36		300 072
	40CF	40KF	70	55	50		300 073
	63CF	40KF	114	55	50		300 102

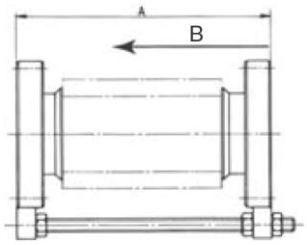
FLEXIBLE COUPLINGS

METAL FLEXIBLE HOSE	DN	A					Reference
	16CF	250					916 601
	16CF	500					916 602
	16CF	750					916 603
	16CF	1000					916 604
	40CF	250					916 605
	40CF	500					916 606
	40CF	750					916 607
	40CF	1000					916 608
	63CF	250					916 609
	63CF	500					916 610
	63CF	750					916 611
	63CF	1000					916 612

F: Fixed / T: Rotatable up to DN63

HYDROFORMED FLEXIBLE BELLOW CONNECTOR	DN	A	B				Reference
	16CF	74	14.7				916 651
	40CF	150	27.5				916 652
	63CF	230	29.7				916 653
	100CF	230	17.5				916 654
	160CF	240	18.5				916 655

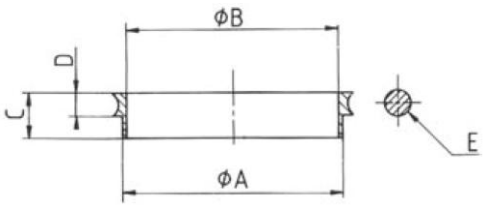
B : compression stroke
F: Fixed / T: Rotatable up to DN63

ADJUSTABLE FLEXIBLE CONNECTOR HYDROFORM	DN	A	B	C	D	E	Reference
	16CF	76	14.7				300 509
	40CF	122	27.5				300 510
	63CF	164	29.7				300 511
	100CF	216	17.5				300 512
	160CF	273	18.5				300 513

B : compression stroke

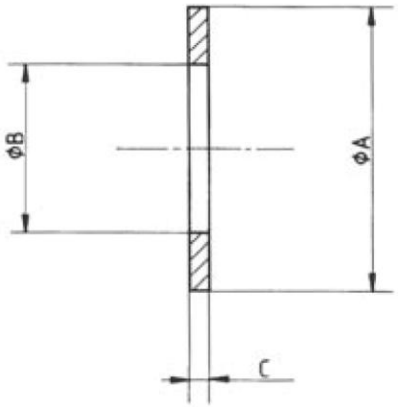
JOINTS

STAINLESS STEEL CENTERING RING WITH VITON O-RING



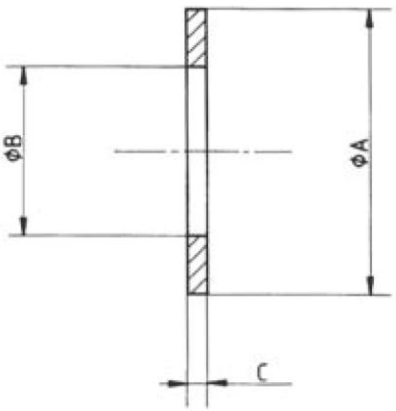
DN	A	B	C	D	E	Reference
63CF	62	60.3	8	4	5.33	300 534
100CF	102	100	8	4	5.33	300 535
160CF	152	150	8	4	5.33	300 536
200CF	203	198	8	4	5.33	300 537
250CF	253	248	8	4	5.33	300 882

FLAT SILVER-PLATED COPPER JOINT (OFHC) CUT TO SIZE

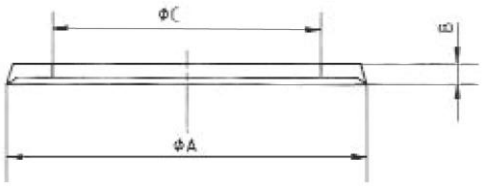


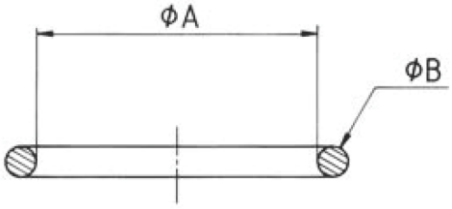
DN	A	B	C	Quantity	Reference
16CF	21	16	2	10	302 643
40CF/L	48	36	2	10	302 645
40CF	48	39	2	10	302 646
63CF/L	82	63	2	10	302 648
63CF	82	72	2	10	302 649
100CF	120	101	2	10	302 650
160CF	171	152	2	10	302 652
200CF	222	203	2	10	302 653
250CF	273	254	2	5	302 654

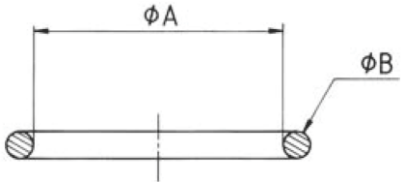
FLAT COPPER JOINT (OFHC) CUT TO SIZE

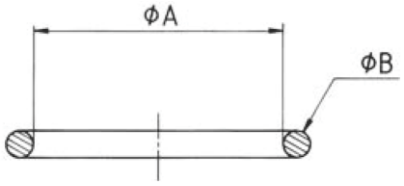


DN	A	B	C	Quantity	Reference
16CF	21	16	2	10	302 631
40CF/L	48	36	2	10	302 633
40CF	48	39	2	10	302 634
63CF/L	82	63	2	10	302 636
63CF	82	72	2	10	302 637
100CF	120	101	2	10	302 638
160CF	171	152	2	10	302 640
200CF	222	203	2	10	302 641
250CF	273	254	2	5	302 642

FLAT VITON O-RING	DN	A	B	C			Reference
	40CF	51	3.1	37.8			301 055
	63CF	84	3.1	72			301 054

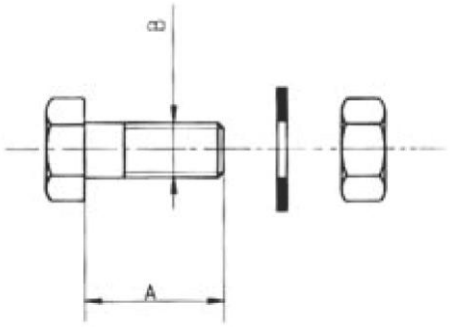
VITON O-RING	DN	A	B				Reference
	63CF	71.88	5.33				300 639
	100CF	101	5.33				300 640
	160CF	151.8	5.33				300 641
	200CF	202.6	5.33				300 642
	250CF	250.6	5.33				300 952
	300CF	325	2				301 014
	350CF	375	2				301 015
	450CF	485	2				301 016

COPPER O-RING	DN	A	B	C	D	Qty	Reference
	300	329	2				300 503
	350	379.5	2				300 902
	450	489	2				300 504

SILVER-PLATED COPPER O-RING	DN	A	B			Qty	Reference
	300	329	2				300 505
	350	379.5	2				300 903
	450	489	2				300 506

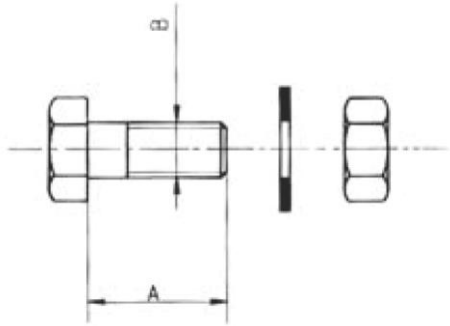
SCREWS

ASSEMBLY SCREW



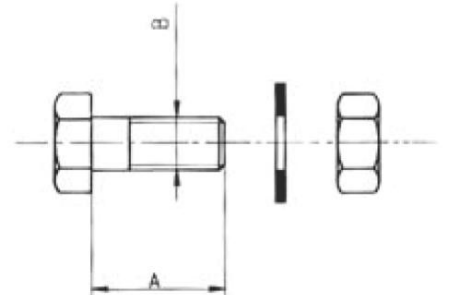
DN	A	B	C	Quantity	Reference
16CF	20	M4		6	300 316
40CF	35	M6		6	300 317
63CF	45	M8		8	300 318
100CF	50	M8		16	300 319
160CF	55	M8		20	300 320
200CF	60	M8		24	300 321
250CF	65	M8		32	300 540

ASSEMBLY SCREWS FOR TAPPED FLANGES



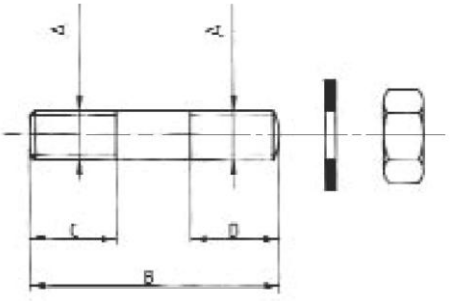
DN	A	B	C	Quantity	Reference
16CF	15	M4		6	300 611
40CF	25	M6		6	300 612
63CF	30	M8		8	300 613
100CF	35	M8		16	300 614
160CF	40	M8		20	300 615
200CF	45	M8		24	300 616
250CF	45	M8		32	300 617

SCREW FOR SYMMETRICAL FLANGE AND VIEWPORT SHUTTER



DN	A	B	C	Quantity	Reference
16CF	15	M4		6	300 618
40CF	25	M6		6	300 619
63CF	30	M8		8	300 620
100CF	35	M8		16	300 621
160CF	40	M8		20	300 622
200CF	45	M8		24	300 623

ASSEMBLY PIN



DN	A	B	C	D	Qty	Reference
16CF	M4	20	7	7	6	300 632
40CF	M6	29	8	12	6	300 633
63CF	M8	35	8	13	8	300 634
100CF	M8	43	13	13	16	300 635
160CF	M8	46	13	13	20	300 636
200CF	M8	49	13	13	24	300 637
250CF	M8	51	13	13	32	300 638

ISO COMPONENTS

Vinci Technologies "ISO" flanges and fittings comply with international ISO and NFE standards, ensuring compatibility with flanges from other manufacturers applying the same specifications.

They are used for diameters of 63 mm and above. The catalogue presents standard components up to 250 mm; larger diameters are available upon request.

Our ISO-K and ISO-F components are manufactured from 304L stainless steel. Special custom parts can be produced on request.

MAIN ADVANTAGES:

The flanges and fittings are made from 304L stainless steel, using UHV-clean manufacturing processes, making them particularly suitable for installations requiring stringent vacuum-quality standards. They can be used in systems with an ultimate pressure below 10^{-8} mbar.

The use of stainless steel compared to light alloys offers the following advantages:

- Reliability

The stainless steel grade and heat treatment are the same as those used for UHV components, ensuring perfect leak-tightness

- Durability

Stainless-steel sealing surfaces offer much better mechanical resistance than light-alloy surfaces, resulting in significantly longer service life.

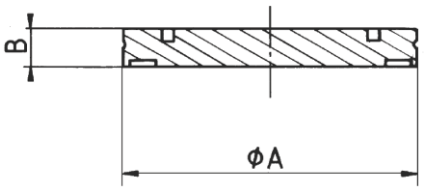
- Bake-out

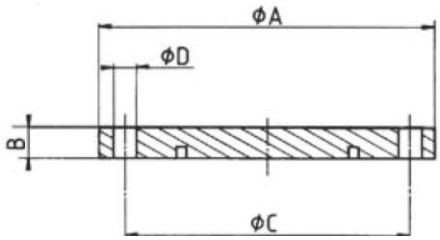
Bake-out temperature is limited by the use of Viton O-rings, for which it is recommended not to exceed 150 °C.

- Applications

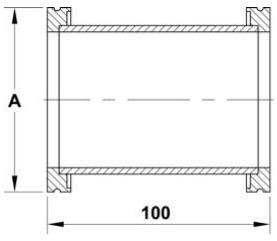
The low outgassing rate, high corrosion resistance, and exceptional durability meet the most demanding requirements of **vacuum technologies, chemical industries,** and **nuclear industries**.

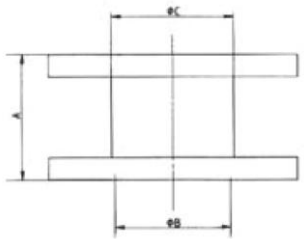
FLANGES & FITTINGS

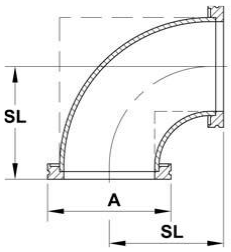
BLANK FLANGE ISO K - 304L	DN	A	B				Reference
	63	95	12				960 101
	100	130	12				960 102
	160	180	12				960 103
	200	240	12				960 104
	250	290	12				960 105

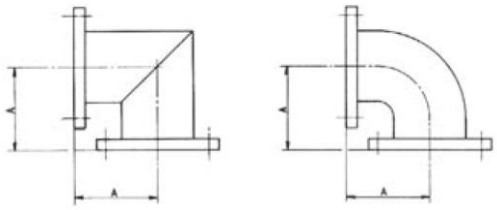
BLANK FLANGE ISO F – 304L	DN	A	B	C	D	E	Reference
	63	130	12	110	9	4	950 101
	100	165	12	145	9	8	950 102
	160	225	16	200	11	8	950 103
	200	285	16	260	11	12	950 104
	250	335	16	310	11	12	950 105

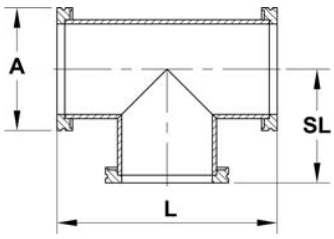
E: number of holes

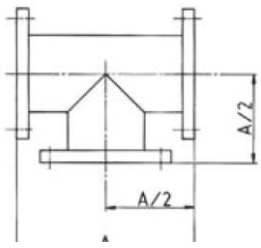
STRAIGHT FITTING ISO K	DN	A					Reference
	63	95					
	100	130					
	160	180					
	200	240					
	250	290					

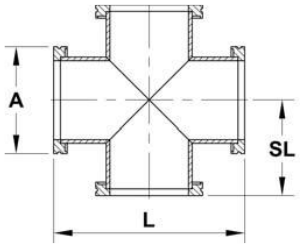
STRAIGHT FITTING ISO F	DN	A	B	C			Reference
	63	176	72.1	76.1			301 298
	100	216	104	104			301 299
	160	276	154	154			301 300
	200	416	219	219			301 301
	250	416	267	267			301 302

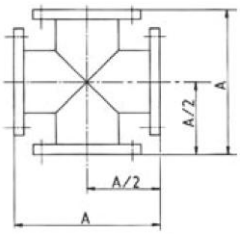
ELBOW ISO K	DN	A	SL	ANGLE			Reference
	63	95	88	ROND			956 301
	100	130	108	ROND			956 302
	160	180	138	DROIT			956 303
	200	240	178	DROIT			956 304
	250	290	208	DROIT			956 305

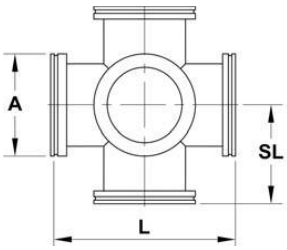
ELBOW ISO F	DN	A					Reference
	63	88					300 172
	100	108					300 173
	160	138					300 174
	200	178					300 175
	250	208					300 669

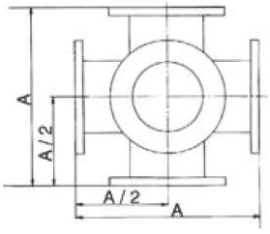
TEE ISO K	DN	A	L	SL			Reference
	63	95	176	88			916 401
	100	130	216	108			916 402
	160	180	276	138			916 403
	200	240	356	178			916 404
	250	290	456	208			916 405

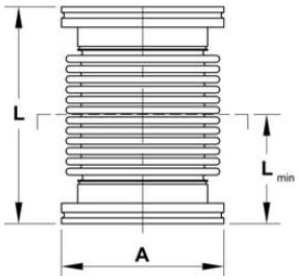
TEE ISO F	DN	A					Reference
	63	176					300 176
	100	216					300 177
	160	276					300 178
	200	416					300 179
	250	416					300 670

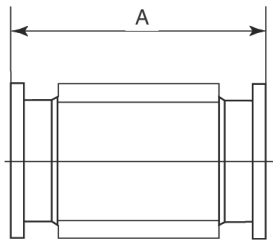
CROSS ISO K	DN	A	L	SL			Reference
	63	95	176	88			916 501
	100	130	216	108			916 502
	160	180	276	138			916 503
	200	240	356	178			916 504
	250	290	456	228			916 505

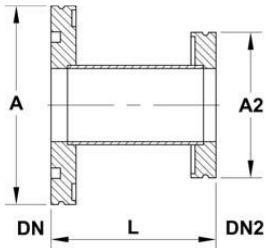
CROSS ISO F	DN	A					Reference
	63	176					300 180
	100	216					300 181
	160	276					300 182
	200	416					300 183
	250	416					300 692

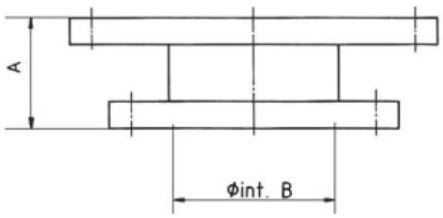
6-WAY CROSS ISO K	DN	A	L	SL			Reference
	63	95	176	88			916 551
	100	130	216	108			916 552
	160	180	276	138			916 553
	200	240	356	178			916 554
	250	290	456	228			916 555

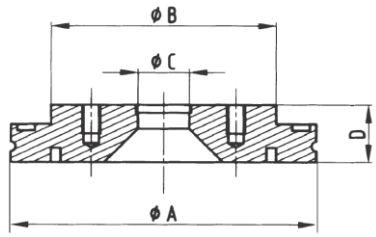
6-WAY CROSS ISO F	DN	A					Reference
	63	176					301 320
	100	216					301 321
	160	276					301 322
	200	416					301 323
	250	416					301 404

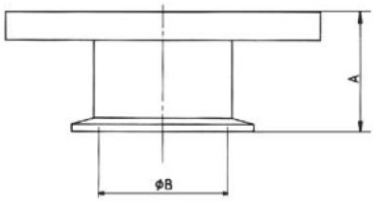
HYDROFORMED FLEXIBLE CONNECTOR ISO K	DN	A	Lmin	L			Reference
	63	95	112	130			
	100	130	112	130			
	160	180	192	220			

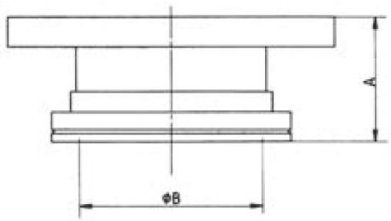
HYDROFORMED FLEXIBLE CONNECTOR ISO F	DN	A					Reference
	63	176					301 283
	100	216					301 284
	160	276					301 285

REDUCTION ISO K	DN	DN2	A	A2	L		Reference
	63	100	130	95	50		916 701
	63	160	180	95	50		916 702
	100	160	180	130	50		916 703
	100	200	240	130	90		916 704

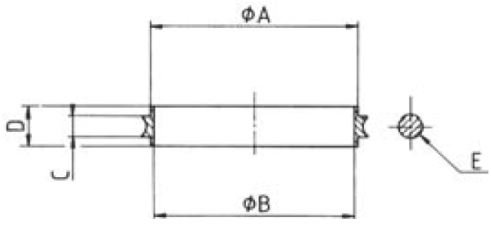
REDUCTION ISO F	DN	A	B				Reference
	63/100	50	72.1				300 168
	63/160	50	72.1				300 169
	100/160	50	100				300 170
	160/200	50	150				300 171

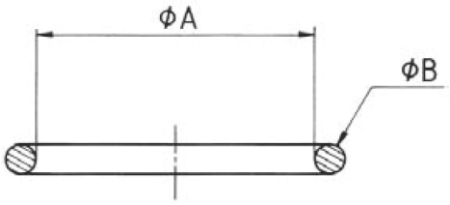
COUPLING ISO-K / KF	DN	A	B	C	D	Reference
	63K/16KF	95	70	16	18	302 240
	100K/16KF	130	70	16	18	302 241
	100K/40KF	130	95	41	18	302 246
	160K/16KF	180	70	16	18	302 242
	160K/40KF	180	95	41	18	302 247

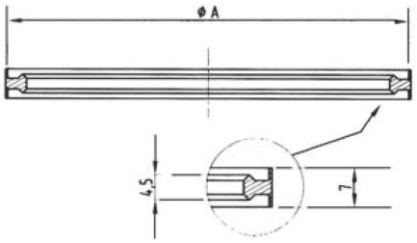
COUPLING ISO-F / KF	DN	A	B			Reference
	63F/40KF	50	41			301 312
	100F/40KF	50	41			301 314

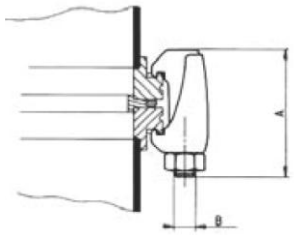
COUPLING ISO-K / ISO-F	DN	A	B		Reference
	63K/63F	75	72.1		301 303
	100K/100F	75	100		301 304
	160K/160F	100	150		301 305

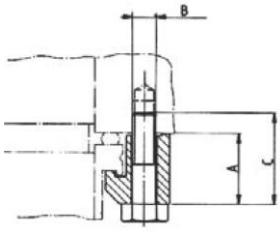
JOINTS & SCREWS

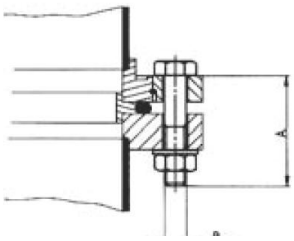
STAINLESS STEEL CENTERING RING WITH VITON O-RING	DN	A	B	C	D	E	Reference
	63	70	68	3.9	8	5.33	300 140
	100	102	100	3.9	8	5.33	300 141
	160	153	148	5.6	14	7	300 142
	200	213	208	5.6	14	7	300 143
	250	261	256	5.6	14	7	300 662

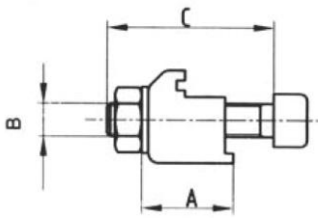
VITON O-RING	DN	A	B			Reference
	63	75.6	5.3			300 148
	100	107.3	5.3			300 149
	160	164.5	7			300 150
	200	215.3	7			300 151
	250	266	7			300 664

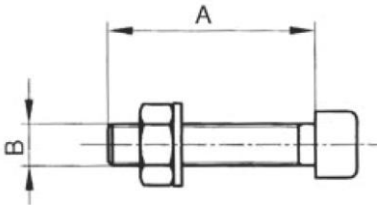
ALUMINIUM JOINT FOR FLANGE ISO-K	DN	A				Reference
	63	95				302 332
	100	130				302 333
	160	180				302 334
	200	240				302 335
	250	290				302 336

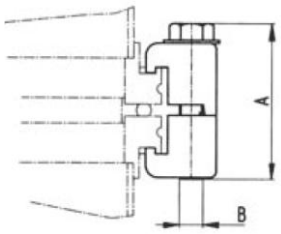
CLAMP BOLT (STEEL)	DN	A	B			Qty	Reference
	63/250	60	M10			6	300 111
	320/500	75	M12			12	300 874
	630	85	M12			12	300 875

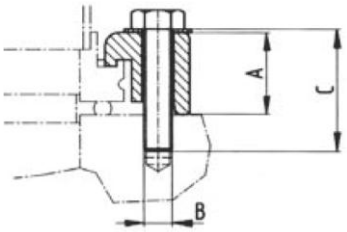
CLAMP (STEEL)	DN	A	B	C		Qty	Reference
	63/100	22.5	M8	35		8	301 884
	125/200	23	M10	35		12	301 885
	320	36.5	M12	50		12	301 886

SCREW (STAINLESS STEEL)	DN	A	B			Qty	Reference
	63	40	M8			4	300 116
	80/100	40	M8			8	300 117
	125/160	50	M10			8	300 118
	200/150	50	M10			12	300 119
	320	60	M12			12	300 883

CLAMPS (STEEL) FOR VIEWPORT ISO-K	DN	A	B	C		Qty	Reference
	63	18.6	M8	40		4	302 204
	100	18.6	M8	45		8	302 205
	160	19.1	M10	50		8	302 206

SCREWS (STAINLESS STEEL) FOR VIEWPORT ISO-F	DN	A	B			Qty	Reference
	63	35	M8			4	302 207
	100	35	M8			8	302 208
	160	45	M10			8	302 209

CLAMP BOLT (ALU)	DN	A	B			Qty	Reference
	63/100	50.5	M8			4	302 581
	160/250	54	M10			6	302 582
	320/500	67.5	M12			12	302 583

CLAMP (ALU)	DN	A	B	C		Qty	Reference
	63/100	23.5	M8	35		8	302 584
	125/200	23.2	M10	35		12	302 585
	320	30	M12	50		12	302 586

KF COMPONENTS

The "Pneurop" flanges and fittings (compliant with ISO and NFE standards) are intended for conventional vacuum piping with small diameters up to 50 mm (for larger diameters, refer to ISO-K and ISO-F fittings). They provide high-quality sealing suitable for laboratory work while remaining economical and easy to assemble with industrial-type convenience.

They offer excellent flexibility and adaptability, making installation configurations very easy to modify.

The basic fitting consists of two symmetrical flanges between which an O-ring and its support are placed, the whole assembly being tightened by a clamp requiring no tools.

Our KF components are manufactured from **304L stainless steel or aluminum alloy**.

MAIN ADVANTAGES

The flanges and fittings are made from 304L stainless steel or aluminum alloy, using UHV-clean manufacturing technology. They are particularly well-suited for installations requiring strict vacuum-quality standards. They can be used in systems with an ultimate pressure below 10^{-7} mbar.

The use of stainless steel over light alloys offers the following advantages:

- Reliability

The stainless steel and its treatment are the same as those used for UHV components, ensuring perfect leak-tightness.

- Durability

Stainless-steel sealing surfaces resist mechanical wear much better than light-alloy surfaces, giving them significantly longer service life.

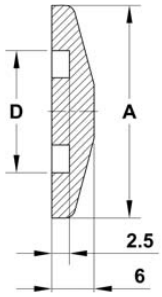
- Bake-out

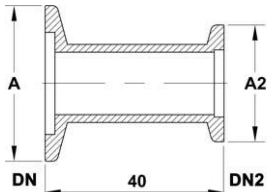
Bake-out temperature is limited by the use of Viton O-rings, for which it is recommended not to exceed 150 °C.

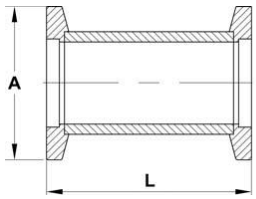
- Applications

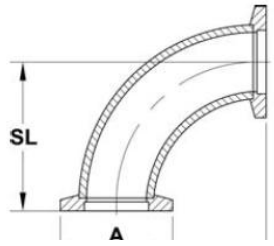
The low outgassing rate, high corrosion resistance, and exceptional durability meet the most demanding requirements of **vacuum technologies, chemical industries**, and **nuclear industries**.

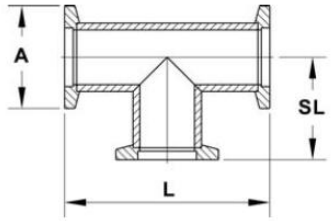
FLANGES & FITTINGS

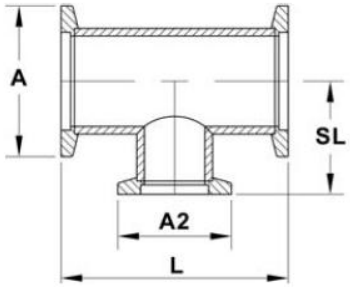
SHUTTER – 304L	DN	A	D				Reference
	16	30	17.2				300 016
	25	40	26.2				300 018
	40	55	41.2				300 020
	50	75	52.2				300 021

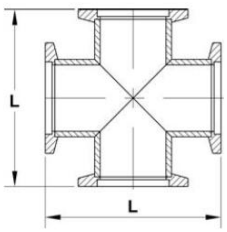
REDUCTION FIITING – 304L	DN	DN2	A	A2			Reference
	25	16	40	30			970 001
	40	16	55	30			970 002
	40	25	55	40			970 003
	50	40	75	55			970 005

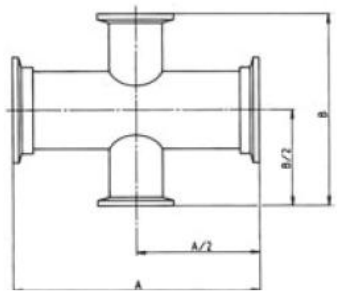
INTERMEDIATE FITTING 304L	DN	A	L				Reference
	16	30	80				970 007
	25	40	100				970 008
	40	55	130				970 009
	50	75	130				970 010

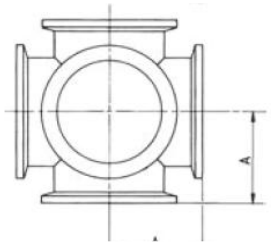
EQUAL ELBOW	DN	SL	A	øint			Reference
	16	40	30	16			300 037
	25	50	40	23			300 038
	40	65	55	35			300 039
	50	70	75	48			300 040

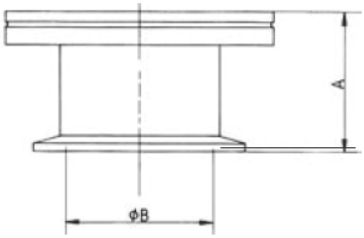
EQUAL TEE	DN	L	SL	A			Reference
	16	80	40	30			300 041
	25	100	50	40			300 042
	40	130	65	55			300 043
	50	140	70	75			300 044

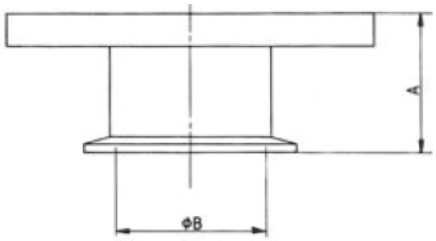
UNEVEN TEE	DN	L	SL	A	A2		Reference
	25/16	100	40	40	30		300 045
	40/16	130	40	55	30		
	40/25	130	50	55	40		300 046
	50/25	140	65	75	40		300 047
	50/40	140	65	75	55		300 048

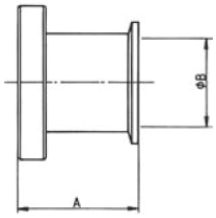
EQUAL CROSS	DN	L					Reference
	10	60					300 519
	16	80					300 049
	25	100					300 050
	40	130					300 051
	50	140					300 052

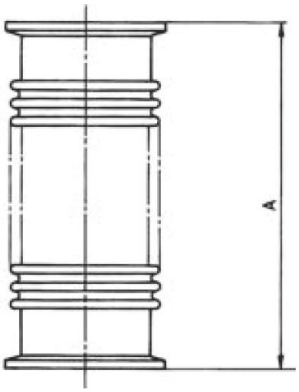
UNEQUAL CROSS	DN	A	B				Reference
	10/25	70	70				300 671
	10/40	80	90				300 672
	16/25	100	80				300 053
	16/40	130	80				300 673
	25/40	130	100				300 054
	25/50	140	100				300 055
	40/50	140	130				300 056

6-WAY CROSS	DN	A					Reference
	16	40					301 327
	25	50					301 328
	40	65					301 329
	50	70					301 330

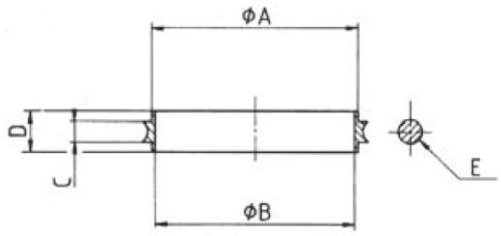
FITTING KF / ISO-K	DN	A	B		Reference
	63K/25KF	50	24		301 306
	63K/40KF	50	41		301 307
	100K/40KF	50	41		301 309

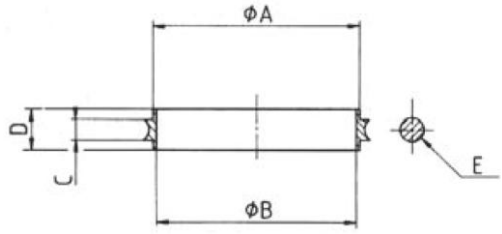
FITTING KF / ISO-F	DN	A	B		Reference
	63F/25KF	50	24		301 311
	63F/40KF	50	41		301 312
	100F/40KF	50	41		301 314

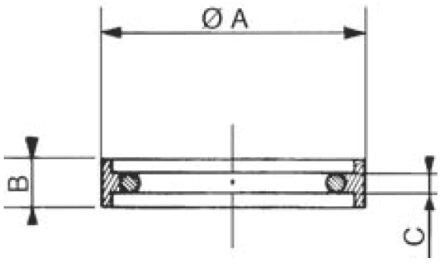
FLANGED FITTING CF/KF	DN	A	B	C	D	E	Reference
	40CF/10KF	55	10				300 792
	40CF/16KF	55	16				300 840
	40CF/25KF	55	24				300 072
	40CF/40KF	55	40				300 073
	63CF/40KF	55	40				300 102

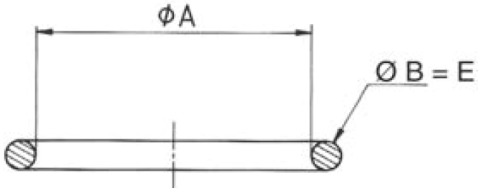
METAL FLEXIBLE HOSE	DN	A	B				Reference
	16	120					300 057
		250					300 058
		500					300 059
		750					300 060
		1000					300 061
	25	120					300 062
		250					300 063
		500					300 064
		750					300 065
		1000					300 066
	40	120					300 067
		250					300 068
		500					300 069
		750					300 070
		1000					300 071
	50	120					300 577
		250					300 578
		500					300 579
		750					300 580
		1000					300 581

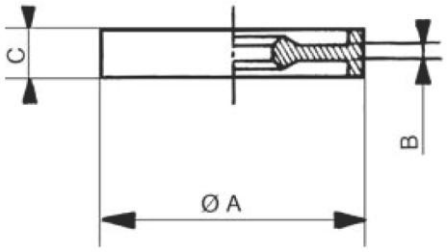
JOINTS & SCREWS

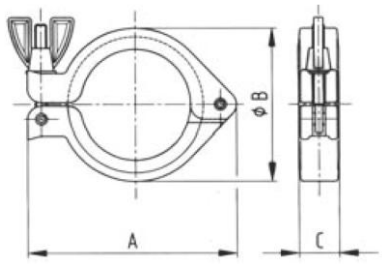
STAINLESS STEEL CENTERING RING WITH VITON O-RING	DN	A	B				Reference
	10	12	10	8	3.9		300 520
	16	17	16	8	3.9		300 074
	25	26	25	8	3.9		300 075
	40	41	40	8	3.9		300 077
	50	52	50	8	3.9		300 078

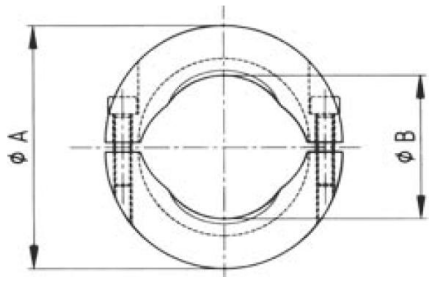
ALUMINIUM CENTERING RING WITH VITON O-RING	DN	A	B				Reference
	10	12	18	8	3.9		302 282
	16	17	16	8	3.9		302 283
	25	26	25	8	3.9		302 285
	40	41	40	8	3.9		302 287
	50	52	50	8	3.9		302 288

ALUMINUM EXTERNAL CENTERING RING WITH VITON O-RING	DN	A	B				Reference
	10/16	32.5	7	3.9			302 296
	25/20	42.5	7	3.9			302 297
	40/32	57	7	3.9			302 298
	50	77.5	7	3.9			302 299

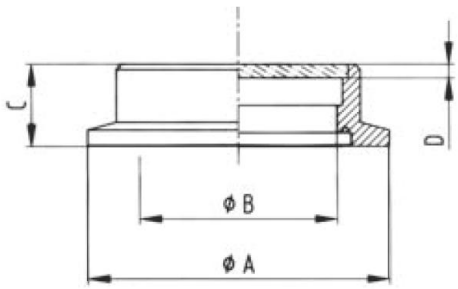
VITON O-RING	DN	A	B				Reference
	10	15	5				300 524
	16	18	5				300 094
	25	28	5				300 095
	40	41	5				300 096
	50	53	5				300 097

ALUMINIUM JOINT	DN	A	B				Reference
	10/16	32	3.9	7			302 292
	25/20	42	3.9	7			302 293
	40/32	57	3.9	7			302 294
	50	77	3.9	7			302 295

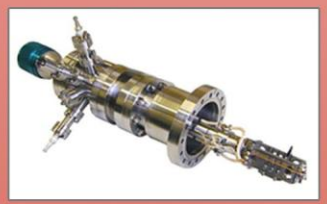
CLAMP (ALUMINUM) WITH WING NUT	DN	A	B				Reference
	10/16	61	45	16			302 627
	25/20	72	55	16			302 628
	40/32	90	70	18			302 629
	50	123	95	20			302 630

CLAMP (STAINLESS STEEL)	DN	A	B				Reference
	10/16	54	22				302 304
	25/20	64	32				302 305
	40/32	82	47				302 306
	50	112	62				302 799

VIEWPORTS

GLASS VIEWPORT	DN	A	B	C	D	E	Reference
	40	55	36	15	2.5		302 785
	50	75	36	15	2.5		302 786

MANIPULATORS



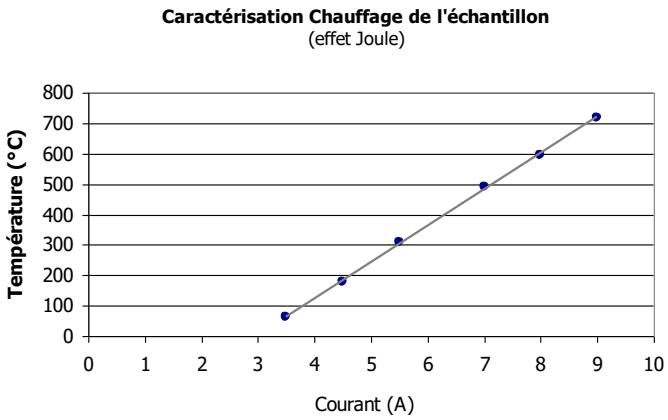
Meca 2000 has developed and designed, since its creation, more than one hundred sample-holder manipulators meeting the strict requirements of research laboratories.
The design of these manipulators remains one of Meca 2000's main activities. Most of them are produced according to the customer's specifications and may include the following features:

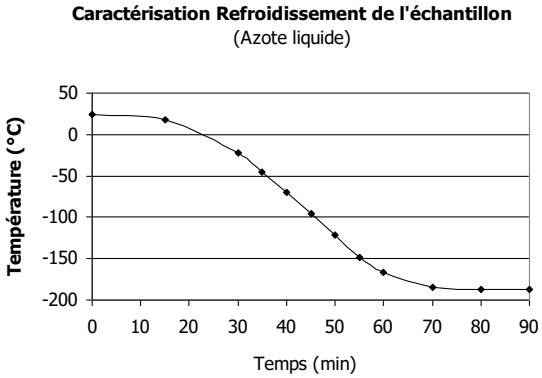
- Sample holders such as Molybloc, screw shovel, bayonet…
- Sample diameters from a few cm² up to 8 inches (or more on request)
- Sample heating above 1000°C
- Sample cooling with liquid nitrogen (77 K)
- Manual or motorized translation movements
- Manual or motorized rotation movements
- Sample-holder tilt
- Sample-holder polarization

The sample-holder manipulators presented in this catalog are examples of products manufactured by Meca 2000.

Feel free to contact us for any specific request.

UHV 6-AXIS MANIPULATOR





DESCRIPTION

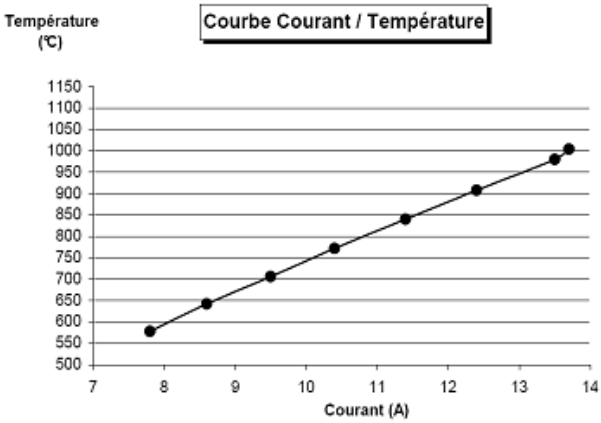
The UHV goniometer is a sample-holder manipulator designed for highly precise movements along 6 axes (three translations and three rotations). It is the perfect complement to analysis chambers, as it provides precise movements along with a heating system allowing the sample to reach 800 °C, and a cooling system down to – 180 °C using liquid nitrogen.

MG-6400	
Technical specifications	
Ultimate pressure	10^{-10} mbar
Sample temperature	-180 °C to + 1400°C
Sample holder	1-inch shovel
Heater type	1-inch electron-bombardment furnace
Thermocouple	Type K
X and Y travel	±17.5 mm motorized
Z travel	200 mm motorized
Translation repeatability	10 µm
Main rotation	±170°
Tilt	±10° motorized
Spin	±95° motorized
Rotation accuracy	5/100°
Rotation repeatability	10/100°
Sample biasing	500 V

5-AXIS HEATED MANIPULATOR FOR 1-INCH SAMPLE

DESCRIPTION

This sample-holder manipulator is suitable for thin-film deposition equipment and analysis systems operating under ultra-high vacuum. It allows mounting and heating of a 1-inch sample up to 1000 °C. The sample can move along 3 translation axes and 2 rotation axes (main rotation and sample rotation).Translation movements are performed using a Meca 2000 MT3 Z300/100CF motion stage.



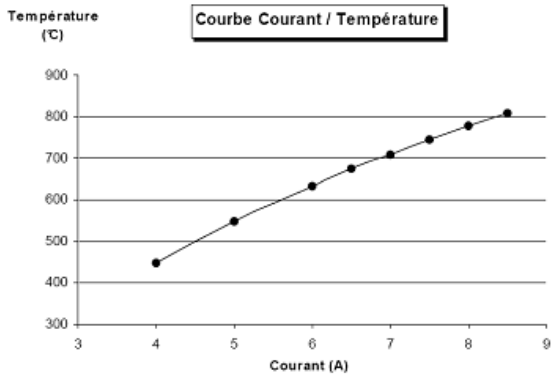
MT-1000	
Technical specifications	
Ultimate pressure	10^{-10} mbar
Sample temperature	Up to 1000 °C
Sample holder	25 x 25 mm² shovel
Heater type	1-inch tantalum furnace
Thermocouple	Type K
X et Y translations	± 12 mm manual*
Z translation	300 mm manual*
Main rotation	± 90°
Sample rotation	± 100°
Sample electrical isolation	External BNC connector
Mounting flange	DN100CF
Bakeout temperature	150 °C

* Motorization optional

5-AXIS MANIPULATOR FOR 2-INCH SAMPLE HEATED IN OXIDIZING ATMOSPHERE

DESCRIPTION

This manipulator allows manipulation and heating of a 2-inch sample up to 800 °C in an oxidizing atmosphere.
The 2-inch PBN furnace withstands oxygen at high temperature. Movements are performed along 5 axes, with continuous sample rotation from 0 to 60 rpm.



MP-800	
Technical specifications	
Ultimate pressure	10^{-10} mbar
Sample temperature	Up to 800 °C under O_2
Sample holder	Molybloc 2 "
Heater type	PBN 2''
Thermocouple	Type K
X et Y translations	± 12,5 mm manual*
Z translation	300 mm manual*
Main rotation	± 90°
Sample rotation	Continuous from 0 to 60 tours / min
Sample electrical isolation	External BNC connector
Mounting flange	DN160CF
Bakeout temperature	150 °C

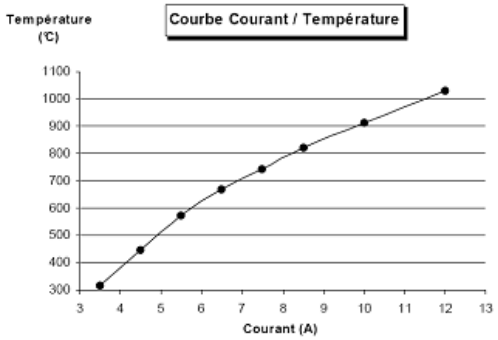
* Motorization optional

5-AXIS MANIPULATOR FOR 2-INCH SAMPLE HEATED WITH FLASH TEMPERATURE UNDER OXIDIZING ATMOSPHERE (O_2)

DESCRIPTION

The MP-1100 manipulator allows heating of a 2-inch sample up to 1100 °C in a fixed position in flash mode (a few seconds).

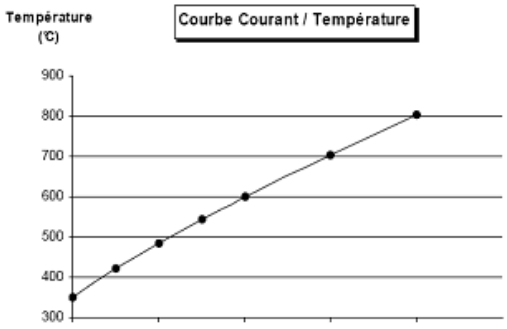
A flux-measurement gauge is integrated on the manipulator head.



MP-1100	
Technical specifications	
Ultimate pressure	10^{-10} mbar
Sample temperature	600°C (rotation) / 1100°C (flash) under O_2
Sample holder	Molybloc 2"
Heater type	PBN 2''
Thermocouple	Type K
X et Y translations	± 12,5 mm manual*
Z translation	75 mm manual*
Main rotation	± 180°
Sample rotation	Continuous from 0 to 60 tours / min
Special feedthrough	Flux-measurement gauge
Mounting flange	DN160CF
Bakeout temperature	150 °C

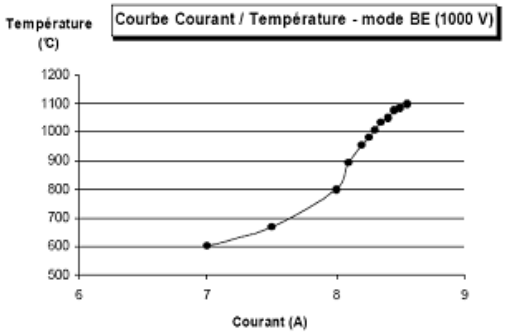
* Motorization optional

5-AXIS MANIPULATOR FOR 1-INCH SAMPLE WITH ELECTRON-BOMBARDMENT HEATING



DESCRIPTION

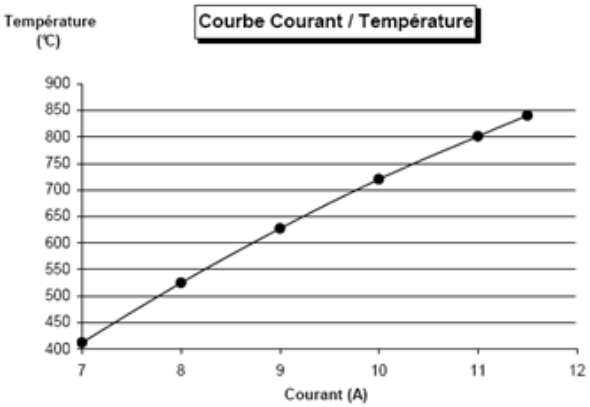
The MB-1000 manipulator is suitable for high-temperature heating (T > 1100 °C) of samples approximately one inch in diameter.
The furnace operates in radiant-heating mode up to 800 °C, and in electron-bombardment mode beyond 1100 °C.
Electron-bombardment heating enables very fast temperature ramp-up of the sample.
Sample manipulation is achieved along 5 axes.



MB-1000	
Technical specifications	
Ultimate pressure	10^{-10} mbar
Sample temperature	800°C (rotation) / 1200°C (BE)
Sample holder	Molybloc 1 pouce
Heater type	Spécial 1''
Thermocouple	Type C
X et Y translations	± 10 mm manual*
Z translation	50 mm manual*
Main rotation	± 180°
Sample rotation	Continuous from 0 to 60 tours / min
Mounting flange	DN160CF
Bakeout temperature	150 °C

* Motorization optional

5-AXIS MANIPULATOR FOR 1-INCH SAMPLE WITH HEATING AND COOLING



DESCRIPTION

The MLN2-800 manipulator can be used for many applications, as it provides 5 movements for the sample (3 translations and 2 rotations), a heating furnace up to 800 °C, and a liquid-nitrogen cooling system allowing the sample to reach –130 °C.

MLN2-800	
Technical specifications	
Ultimate pressure	10^{-10} mbar
Heating temperature	800°C
Cooling temperature	-130 °C using liquid nitrogen
Sample holder	25 x 25 mm² shovel
Heater type	Tantale 1''
Thermocouple	Type K
X et Y translations	± 12 mm manual*
Z translation	50 mm manual*
Main rotation	± 30°
Sample rotation	± 90°
Mounting flange	DN160CF
Bakeout temperature	150 °C

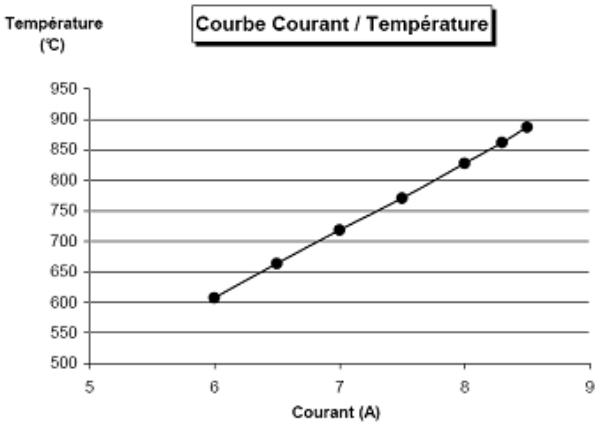
* Motorization optional

HEATED MANIPULATOR WITH STORAGE STATION

DESCRIPTION

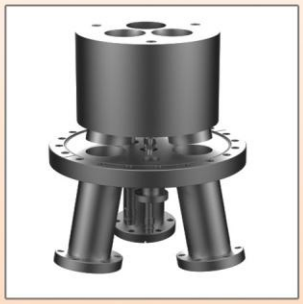
The MPS-804 manipulator allows both the storage of 4 sample holders and the heating of one position.
It is recommended for load-lock chambers of UHV systems, providing:

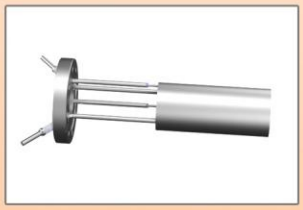
- sample storage, and
- sample preparation prior to deposition, with degassing up to 900 °C.

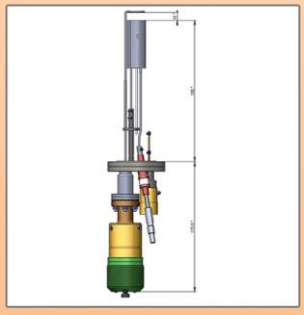


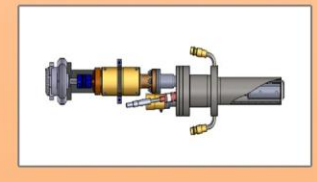
MPS-804	
Technical specifications	
Ultimate pressure	10^{-10} mbar
Sample temperature	900°C
Sample holder	Polarizable shovel, up to 1000 V
Heater type	1-inch tantalum filament furnace
Thermocouple	Type K
Main rotation	± 180°

EFFUSION CELLS

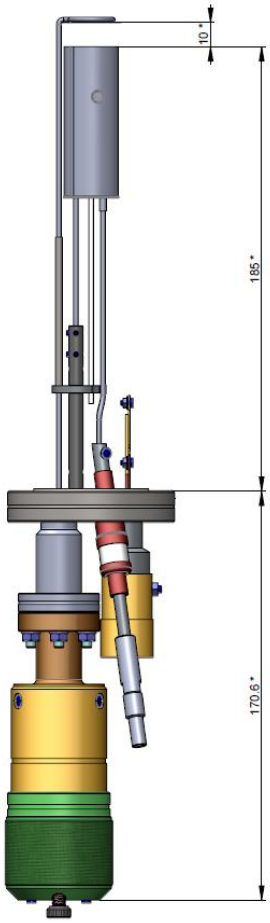








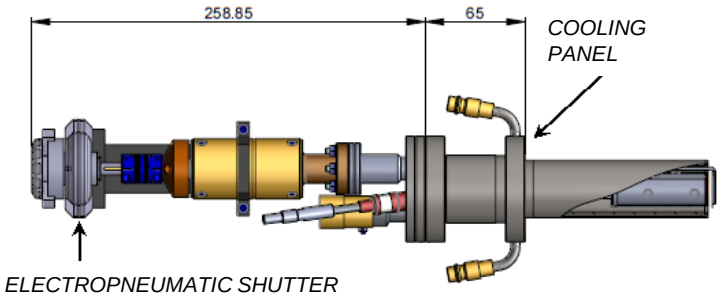
SEJ 15/40 – 1.5 cc – 1400°C



STANDARD SPECIFICATIONS		
Mounting flange	40CF	
Maximum temperature	1400°C	
Thermocouple	K or C	
Cell shutter	Manual	
Crucible	Al_2O_3 - 1.5 cc	

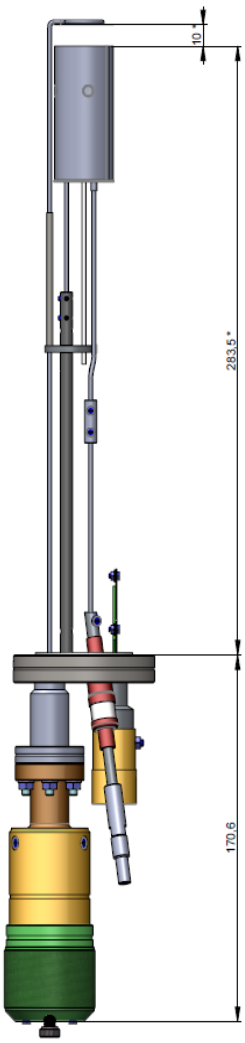
Model	Thermocouple	Reference
SEJ 15/40 K	Type K	302 431
SEJ 15/40 C	Type C	302 432

Options	
Boron nitride pyrolitic crucible (PBN)	302 138
Alumina crucible (Al_2O_3)	302 139
Graphite crucible (C)	302 140
Pneumatic shutter (24 VDC without power supply)	302 146
Cooling panel on flange 40CF	302 143



Spare parts	
Crucibles	See options
Degassed heater without crucible	302 137
Thermocouple type K (Al_2O_3 insulation)	302 141
Thermocouple type C (Al_2O_3 insulation)	302 142
Shutter without control	302 144

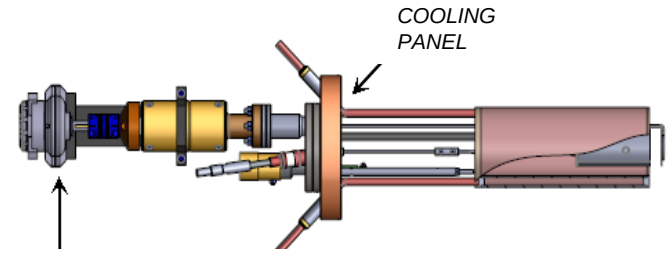
SEJ 20c/40 – 2 cc conique – 1400°C



STANDARD SPECIFICATIONS		
Mounting flange	40CF	
Maximum temperature	1400°C	
Thermocouple	K ou C	
Cell shutter	Manual	
Crucible	Al_2O_3 - 2 cc	

Model	Thermocouple	Reference
SEJ 20c/40 K	Type K	302 966
SEJ 20c/40 C	Type C	302 967

Options	
Boron nitride pyrolitic crucible (PBN)	302 968
Alumina crucible (Al_2O_3)	302 970
Graphite crucible (C)	302 971
Pneumatic shutter (24 VDC without power supply)	302 973
Cooling panel on flange CF40/CF63	302 154



Spare parts	
Crucibles	See options
Degassed heater without crucible	302 974
Thermocouple type K (Al_2O_3 insulation)	302 975
Thermocouple type C (Al_2O_3 insulation)	302 976
Shutter without control	302 979

SEJ 25/40 – 25 cc – 1500°C

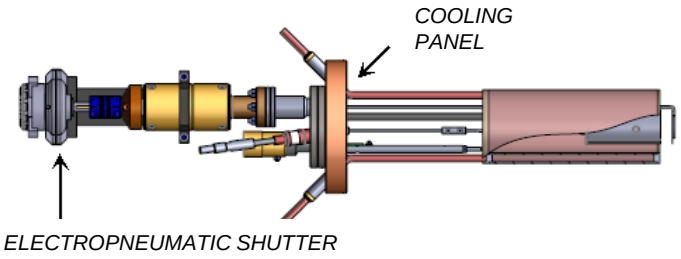
STANDARD SPECIFICATIONS

Mounting flange	40CF	
Maximum temperature	1500°C	
Thermocouple	K ou C	
Cell shutter	Manuel	
Crucible	Al_2O_3 - 25 cc	

Model	Thermocouple	Reference
SEJ 25/40 K	Type K	302 433
SEJ 25/40 C	Type C	302 434

Options

Boron nitride pyrolitic crucible (PBN)	302 150
Alumina crucible (Al_2O_3)	302 151
Pneumatic shutter (24 VDC without power supply)	302 157
Cooling panel on flange CF40/CF63	302 154

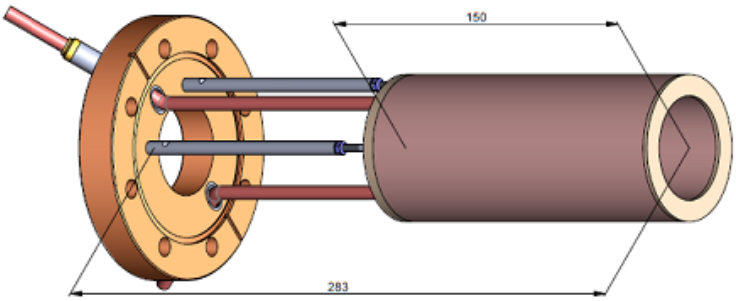


Spare parts

Crucibles	Voir options
Degassed heater without crucible	302 149
Thermocouple type K (Al_2O_3 insulation)	302 152
Thermocouple type C (Al_2O_3 insulation)	302 153
Shutter without control	302 155

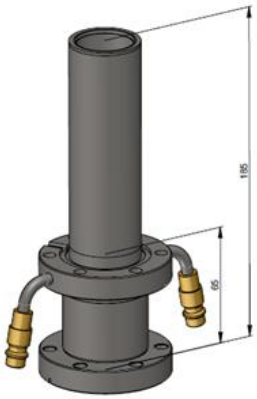
COOLING PANEL FOR CELLS SEJ

Model	Flanges	Reference
PR 63-40	63CF / 40CF	302 154



COOLING PANEL FOR CELL SEJ 15/40

Model	Flanges	Reference
PR 40-40	40CF	302 143

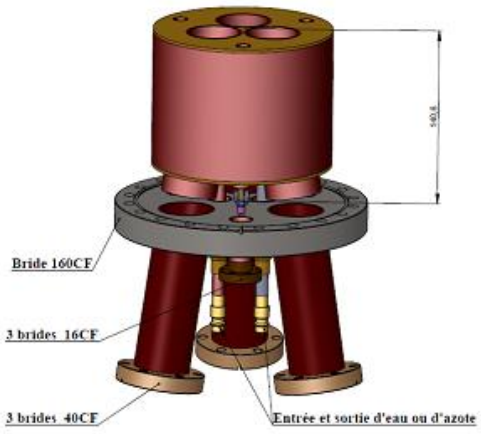


Spécial SEJ 15/40 - 1.5cc

SUPPORT FLANGE FOR EFFUSIONN CELLS

Model	Characteristics	Reference
BPSEJ	Source support for effusion cell with water or liquid nitrogen cooling system. Mounting on CF160 and designed to receive 3 effusion cells on CF40 flange. 3 CF16 flanges enable for shutters	301 017

- Confocal position for the cells
- Max water flow : 4 L/min



REGULATED POWER SUPPLY FOR EFFUSION CELL : ACT5

Power supply ACT-5 was designed by Vinci Technologies to provide research laboratories with a power supply specially adapted for effusion cells and manipulator heater.

It also allows the heating of sample holders and evaporation systems by Joule effect.

It comes in the form of a 19" rack 3U and integrates the power supply operating in constant voltage or constant current, with a regulator to maintain accurate temperature.

It is equipped for standard version with 2 thermocouple connectors : K and C and one shutter command.

RS232 plug for programming all parameters of the controller is available on request.

- Power switching: continuous output current and voltage:
  - Vmax = 34 V / 30 V / 48 V depending on model
  - Imax = 10 A / 16 A / 24 A depending on model

- Voltage and current setting over the entire operating range by multi-turn potentiometer

- Input voltage: 220 V ± 10 % to 50 Hz

- Dimensions: Rack 19" height 3 U

- Temperature regulation: P.I.D. numerical regulator with self-regulating and self-adaptive microprocessor

Accepts all conventional temperature probes equipped with outlets for thermocouples K and C :

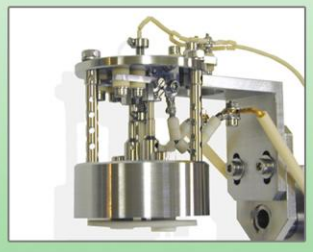
- Th. K (Chromel/Alumel) Tmax = 1200°C
- Th. C (Tungsten Rhenium 5 %/26 %) Tmax = 2500°C

- Temperature setting by digital buttons, programming possibilities of a slope to the set value.

The accuracy is about 0.5% of scale.

POWER SUPPLY ACT 5

Power supply		Associated cell	References
ACT-5-10-24	10 A – 24 V	SEJ 15/40 – SEJ 20/40	350 001
ACT-5-16-30	16 A – 30 V	SEJ 25/40 – SEJHT 10/40	350 002
ACT-5-10-48	10 A – 48 V		350 003
ACT-5-24-30	24 A – 30 V	SEJ 40/40	350 004



SUBSTRATE HOLDERS & HEATERS

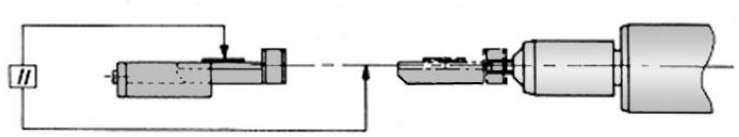
TRANSFER SYSTEMS OF SUBSTRATE HOLDERS

With more than 300 different substrate holders, designed and manufactured by Vinci Technologies, our team have an unique expertise and know-how in Europe on this activity.

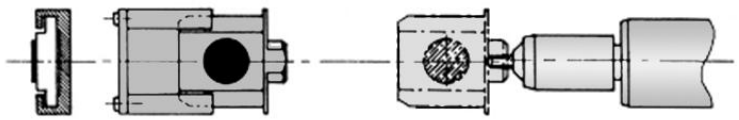
Whatever the specifications you are looking for the operating pressure, for the substrate size, for the functions : heating and/or cooling, our experience and expertise will provide you the best system transfer for your requests.

We offer 3 standard methods for substrate-holder transfer :

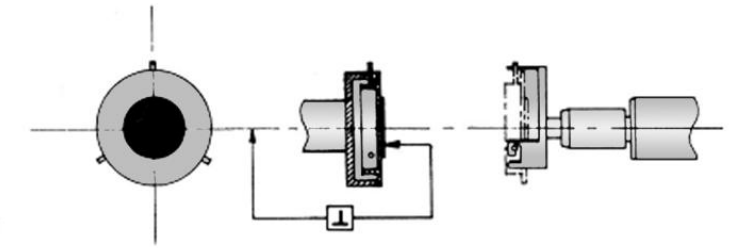
- **Transfer by bayonet or screw**
- **Tangential transfer**
- **Transfer by molybloc**



Transfer by screw



Tangential transfer

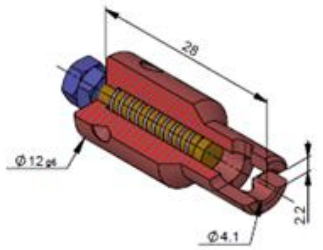


Transfer by Molybloc

Contact us for any specific request

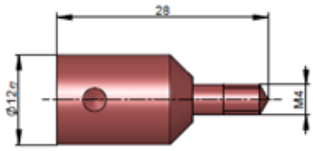
TRANSFER SYSTEMS OF SUBSTRATE-HOLDERS

BAYONET



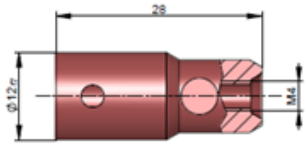
Material	Reference
Stainless steel	**302 460**

SCREW MALE



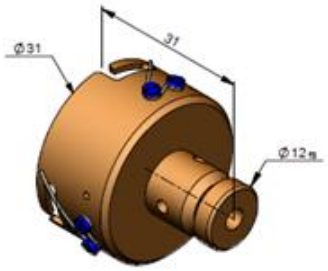
Material	Reference
Stainless steel	**302 461**

SCREW FEMALE



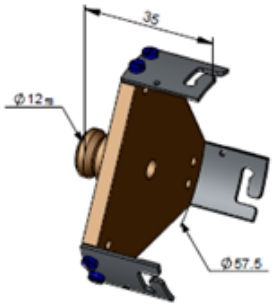
Material	Reference
Stainless steel	**302 462**

1 INCH



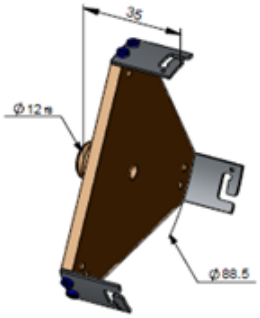
Material	Reference
Stainless steel	**302 463**
Moly	**302 464**

2 INCHES



Material	Reference
Stainless steel	**302 465**
Moly	**302 466**

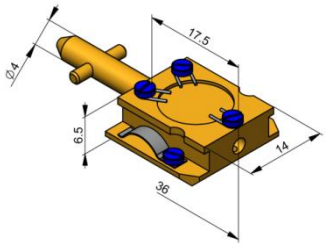
3 INCHES



Material	Reference
Stainless steel	**303 103**
Moly	**303 104**

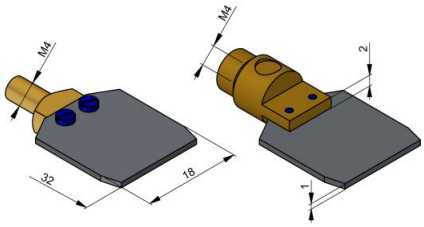
SUBSTRATE HOLDERS

TANGENTIAL P.A.T. 10



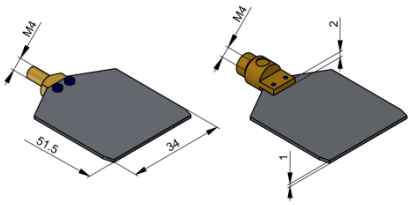
Material	Reference
Stainless steel	**302 467**
Tantalum	**302 468**

TANGENTIAL P.A.T. 12



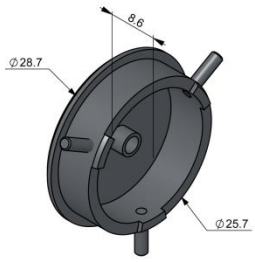
Material	Reference
Male : Stainless steel	**302 471**
Male : Moly	**302 472**
Female : Stainless steel	**302 469**
Female : Moly	**302 470**

TANGENTIAL P.A.T. 25



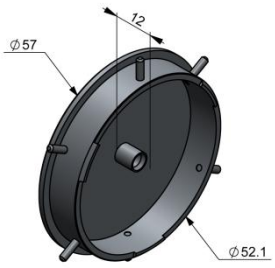
Material	Reference
Male : Stainless steel	**303 105**
Male : Moly	**303 106**
Female : Stainless steel	**302 473**
Female : Moly	**302 474**

BLOC 1 INCH



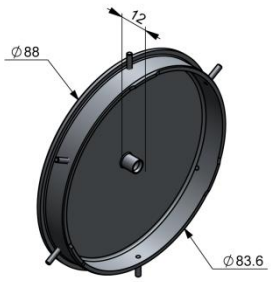
Material	Reference
Stainless steel	**302 475**
Molybdenum	**302 476**

BLOC 2 INCHES



Material	Reference
Stainless steel	**302 479**
Molybdenum	**302 480**

BLOC 3 INCHES



Material	Reference
Stainless steel	**303 107**
Molybdenum	**303 108**

HEATERS

Vinci Technologies heating elements can bear high temperature samples for PVD systems or analysis systems.

These heaters provide heating for a few hundred degrees to over 1500 °C with diameters up to 3 inches for standard heaters. **For larger diameters and specific products, contact us.**

Vinci Technologies heater range is available in 5 families:

- **Filament heaters** : they allow heating up to 1000 °C with a high accuracy on a 1 inch diameter by a filament made of tantalum.

- **Electron beam heaters** : they allow radiative heating up to 1000 °C and up to over 1400 °C by electron beam to a diameter of 9 mm or 1 inch with a tungsten filament. A dedicated power supply (ACTBE) should be used for the electron beam mode.

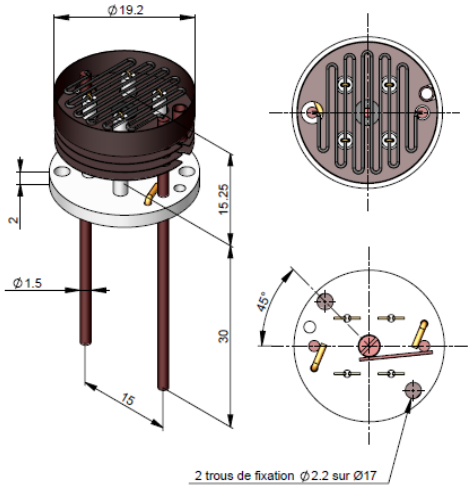
- **PBN heaters** : these heaters are available in diameter 1 inch and 2 inches. They provide heating up to 800 °C. Their particularity is the coating of the heating element with PBN (nitride boron pyrolytic) plates which allows heating in the presence of oxygen of a few 10-3 mbar. They are recommended for systems deposition of oxides.

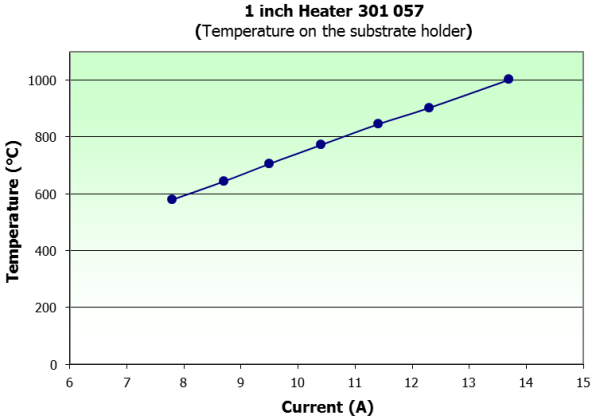
- **Sheath filament heaters** : as PBN heaters, these heaters are used for the oxygen process but for oxygen pressures up to 1000 mbar. They provide heating to 900 ° C on a diameter greater than 2 inches. Specific versions may be offered to larger diameters.

- **Flat filament heaters** : This type of heaters is available in diameter 1 inch and 2 inches and is used for applications requiring high temperature homogeneity on the largest diameter. They provide heating to 800 °C (continuous) and 1000°C (flash).

FILAMENT HEATERS

1 INCH RADIANT HEATER

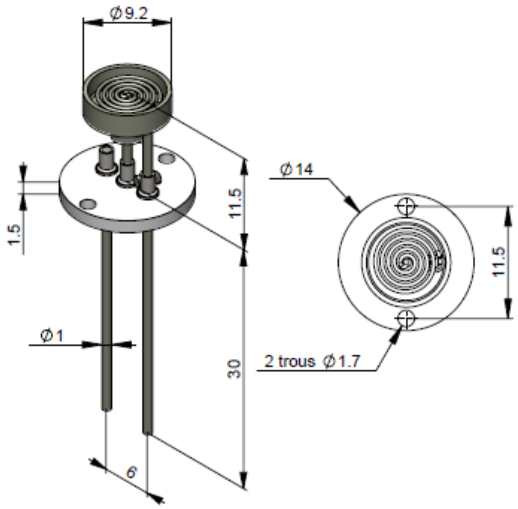




Heater type	Radiant
Filament	Tantalum
Max. temperature	1000°C
Max. current	14 A
Reference	**301 057**

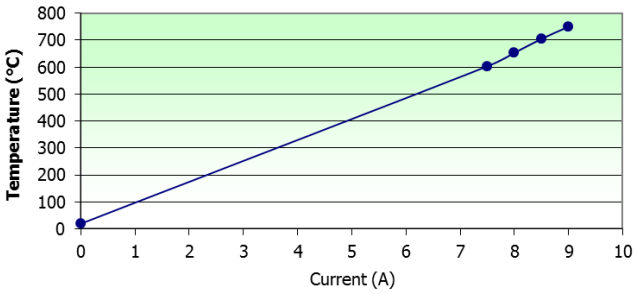
ELECTRON BEAM HEATERS

Ø9- E-BEAM

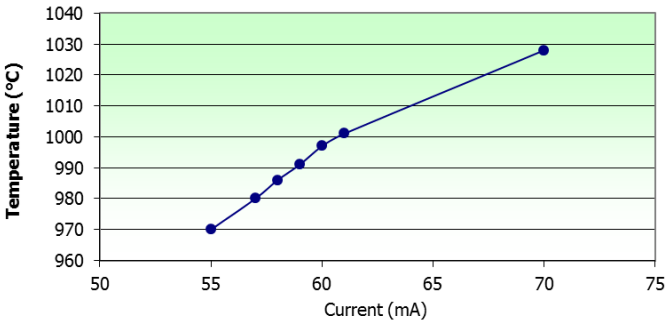


Heater type	Radiant and E.B
Filament	Tantalum
Max. temperature	800 °C / 1400 °C
Max. current	10 Amps
U/I Max.	-
Resistance at 100°C	0,5 Ω
Reference	**301 056**

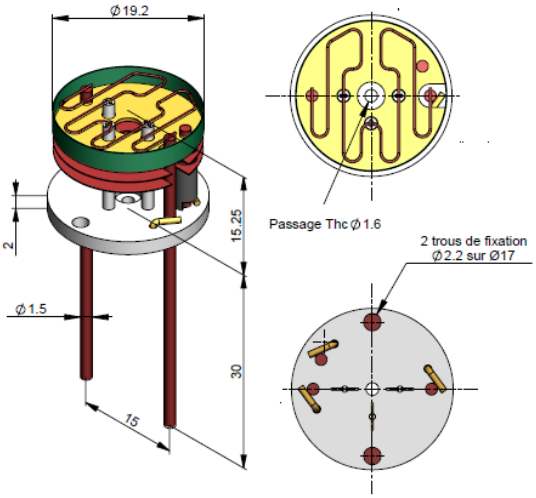
Caracterisation EB Heater 9 mm 301056 (Joule effect)



Caracterisation EB Heater 9mm 301056
(Electron bombardment+ Joule effect)
Joule effect : U ~3.9 V, I ~7.7 Amps / HT = 800 V

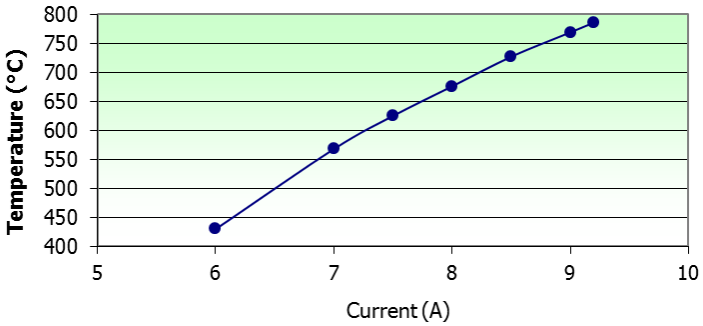


1'' – E-BEAM

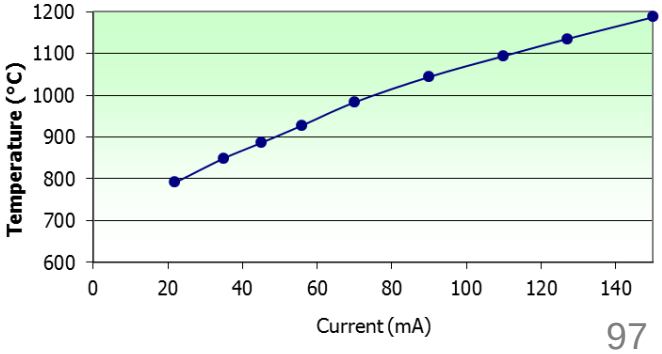


Heater type	Radiant and E.B
Filament	Tungsten
Max. temperature	1400°C
U/I Max.	8V / 9Amps
Reference	**302 482**

Caracterisation EB Heater 1 inch 302482
(Joule effect)

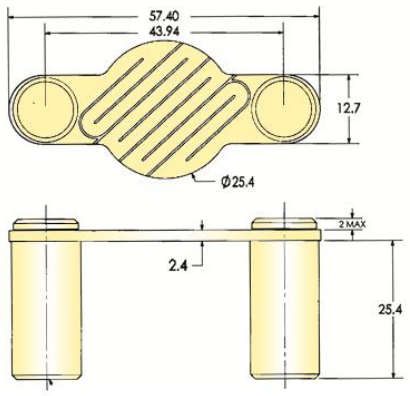


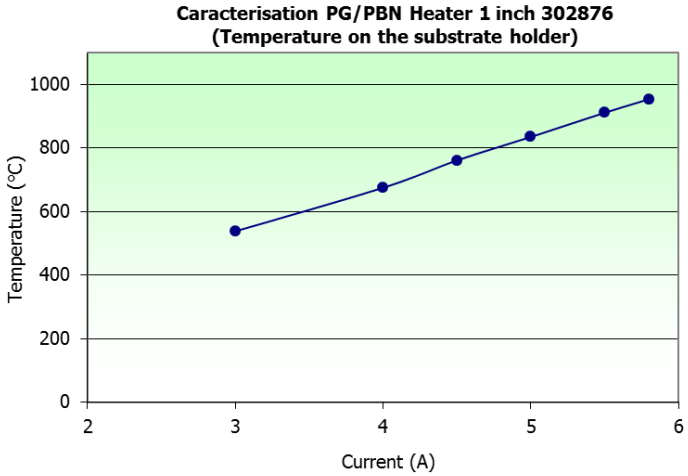
Caracterisation EB Heater 1 inch 302482
(Electronic bombardment)



PBN HEATERS

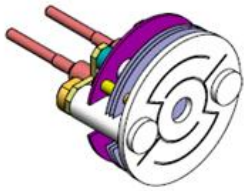
1 INCH - PBN

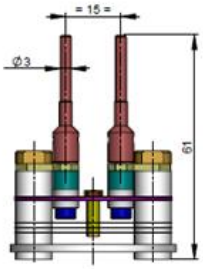


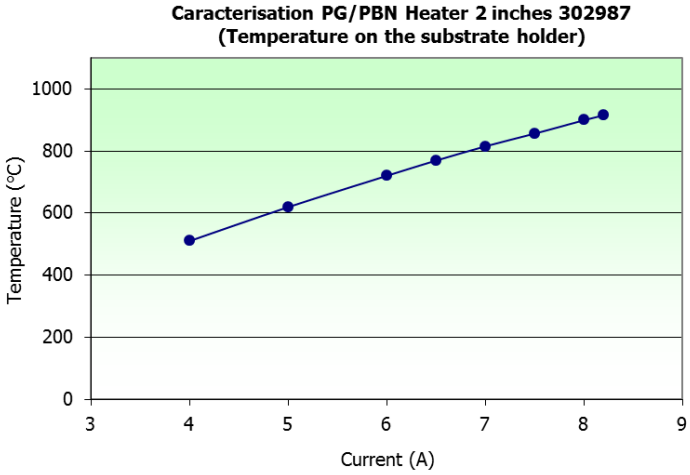


Heater type	Radiant
Heater	PBN
Max. temperature	1000 °C
U/I Max.	40V/6A
O_2 max. pressure	10^{-3} mbar
Heater reference	**302 876**
Column reference	**320 002**

2 INCHES PBN

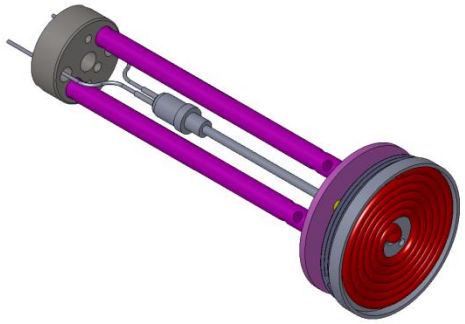




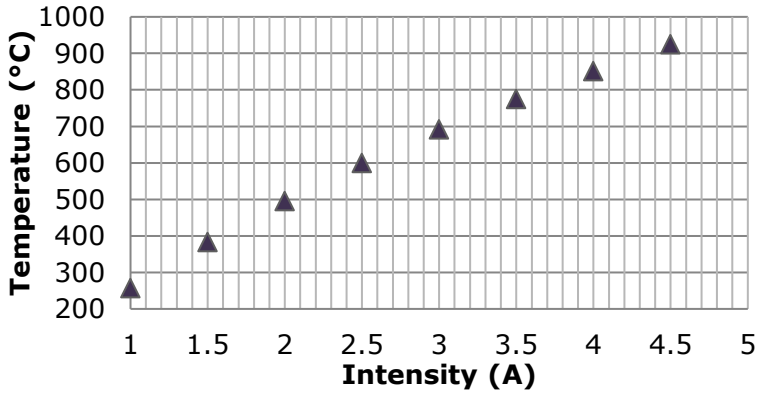


Heater type	Radiant
Heater	PBN
Max. temperature	900 °C
U/I Max.	25V/10Amps
O_2 max. pressure	10^{-3} mbar
Reference	**302 987**

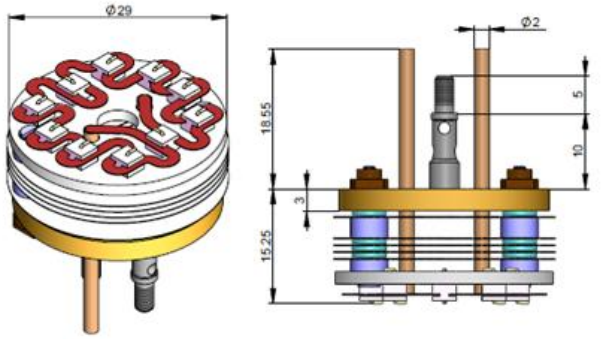
SHEATH FILAMENT HEATER



FFG 2 INCHES	
Filament	Gainé
Continuous temperature	900 °C
U/I Max.	40 V/ 5Amps
O_2 max. pressure	1000 mbar
Reference	**310 001**

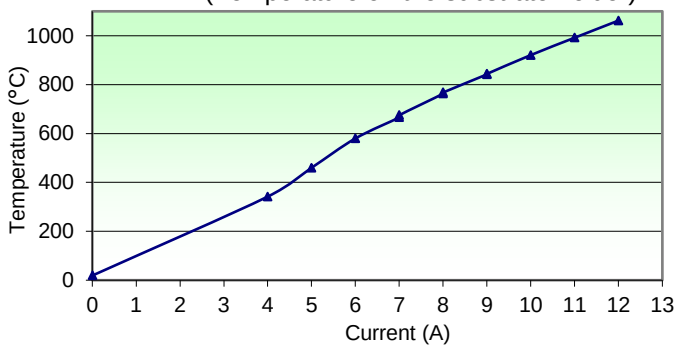


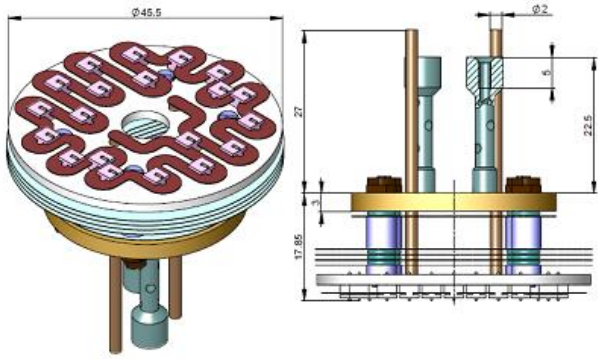
FLAT HEATERS



FPT 1 INCH TANTALUM	
filament	Tantalum
Continuous temperature	1000 °C
U/I Max.	15V/15Amps
Flash temperature	1200 °C
Reference	**302 931**

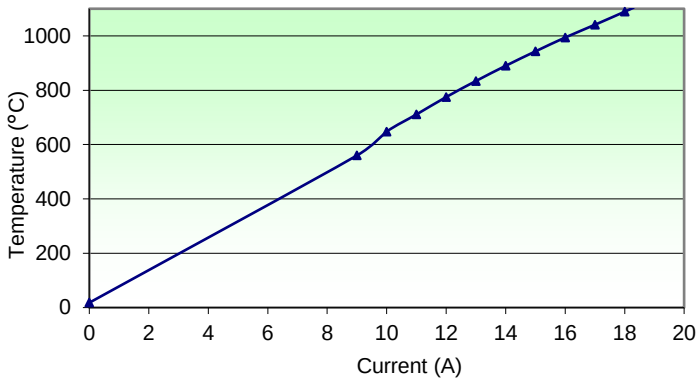
Caracterisation 1 inch tantalum heater
(Temperature on the substrate holder)





FPT 2 INCHES TANTALUM	
filament	Tantalum
Continuous temperature	1000 °C
U/I Max.	15V/20Amps
Flash temperature	1200 °C
Reference	**302 931**

Caracterisation 2 inches flat tantalum heater
(Temperature on the substrate holder)



FPP 2 INCHES PLATINIUM OXYGEN-RESISTANT	
Filament	Platinium
Continuous temperature	1000 °C
U/I Max.	-
Flash temperature	1200 °C
Referencee	**302 961**

REGULATED POWER SUPPLY : ACT5

Power supply ACT-5 was designed by Vinci Technologies to provide research laboratories with a power supply specially adapted for effusion cells and manipulator heater.

It also allows the heating of sample holders and evaporation systems by Joule effect.

It comes in the form of a 19" rack 3U and integrates the power supply operating in constant voltage or constant current, with a regulator to maintain accurate temperature.

It is equipped for standard version with 2 thermocouple connectors : K and C and one shutter command.

RS232 plug for programming all parameters of the controller is available on request.

▪Power switching: continuous output current and voltage:
➢Vmax = 34 V / 30 V / 48 V depending on model
➢Imax = 10 A / 16 A / 24 A depending on model

▪Voltage and current setting over the entire operating range by multi-turn potentiometer

▪Input voltage: 220 V ± 10 % to 50 Hz

▪Dimensions: Rack 19" height 3 U

▪Temperature regulation: P.I.D. numerical regulator with self-regulating and self-adaptive microprocessor
Accepts all conventional temperature probes equipped with outlets for thermocouples K and C :
➢Th. K (Chromel/Alumel) Tmax = 1200°C
➢Th. C (Tungsten Rhenium 5 %/26 %) Tmax = 2500°C

▪Temperature setting by digital buttons, programming possibilities of a slope to the set value.
The accuracy is about 0.5% of scale.

POWER SUPPLY ACT 5			
Power supplies		**Associated heaters**	**References**
ACT-5-10-24	10 A – 24 V	EB 9mm – EB 1" – PBN 2" – FPT1 – FPT2	350 001
ACT-5-16-30	16 A – 30 V	RAD 1"	350 002
ACT-5-10-48	10 A – 48 V	PBN 1"'– FFG2"	350 003
ACT-5-24-30	24 A – 30 V		350 004

POWER SUPPLY ACTBE

Power supply ACT BE model has been specially designed to solve the various problems of heating by electron bombardment.

It is used for heating and temperature regulation of a sample and is very easy to use thanks to its programmable temperature regulator.

Equipped with two thermocouples type K and C, it also accepts all conventional probes. A control button lets you choose between three options for regulating as follows:

- Filament current regulation
- Emission current regulation
- Temperature regulation

SPECIFICATIONS

- Voltage: 220 V – 50 Hz
- Biasing: 0 à 1500 V
- Emission current: 0 à 300 mA
- Filament current: 0 à 12 A
- Dimensions: Rack 19 inches, 5 units
- Mass: 30 Kg

POWER SUPPLY ACTBE	
Reference	**302 158**