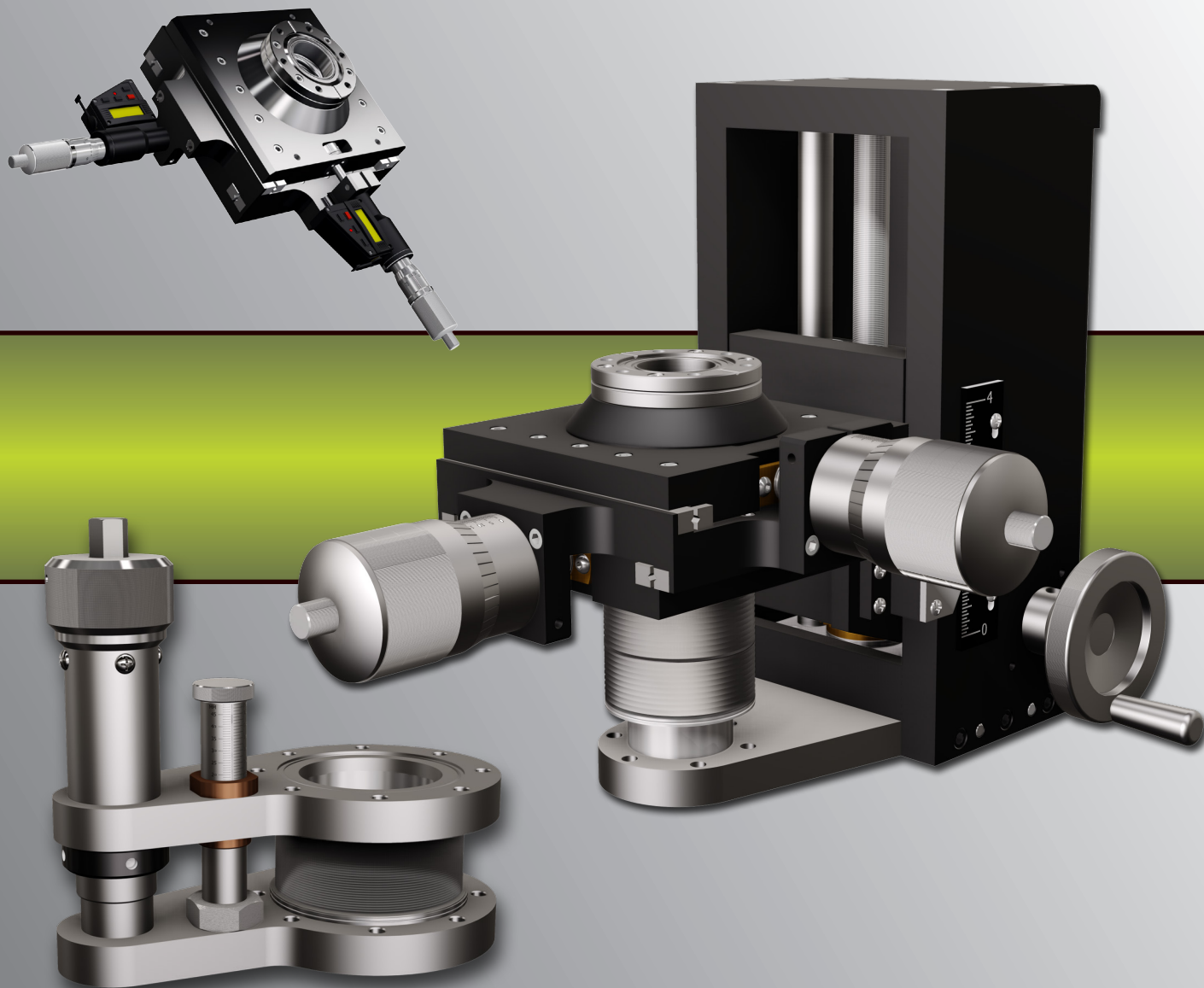




Huntington

Mechanical Labs, Inc.



MANIPULATORS & STAGES

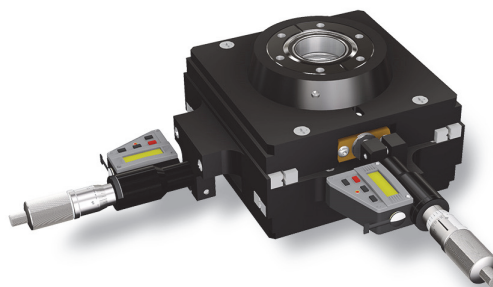
ULTRA-HIGH VACUUM COMPONENTS

**tec
tra**

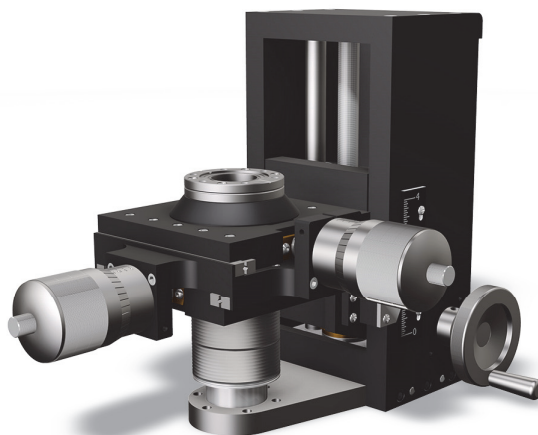
For quotes and additional information, please contact:
Tetra GmbH – Phone: +49-(0)-69-720040 – Email: info@tetra.de



CMZ Series



DTS-275 Series



PM-275 Series

THIS SECTION: MANIPULATORS & STAGES

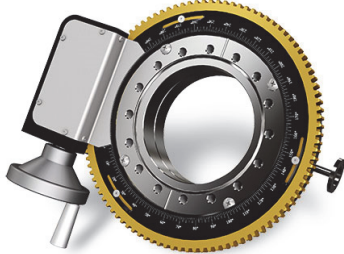
ITEM	PAGE
ROTARY MOTION STAGES	2
TILT MOTION STAGES	3
X-Y AXIS MANIPULATORS	4
COMPACT Z AXIS MANIPULATORS	5
Z AXIS MANIPULATORS	6
X-Y-Z AXIS MANIPULATORS	7

Section 5

MANIPULATORS AND STAGES

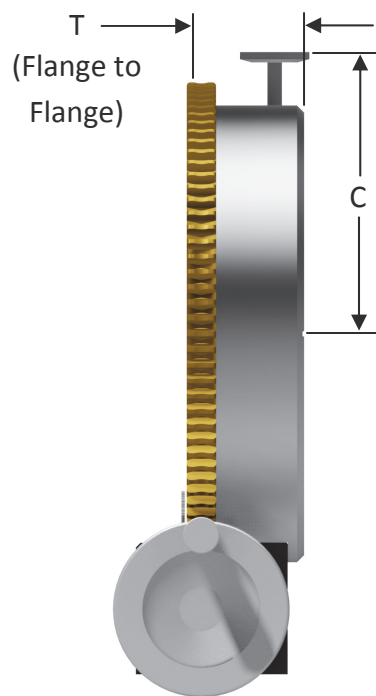
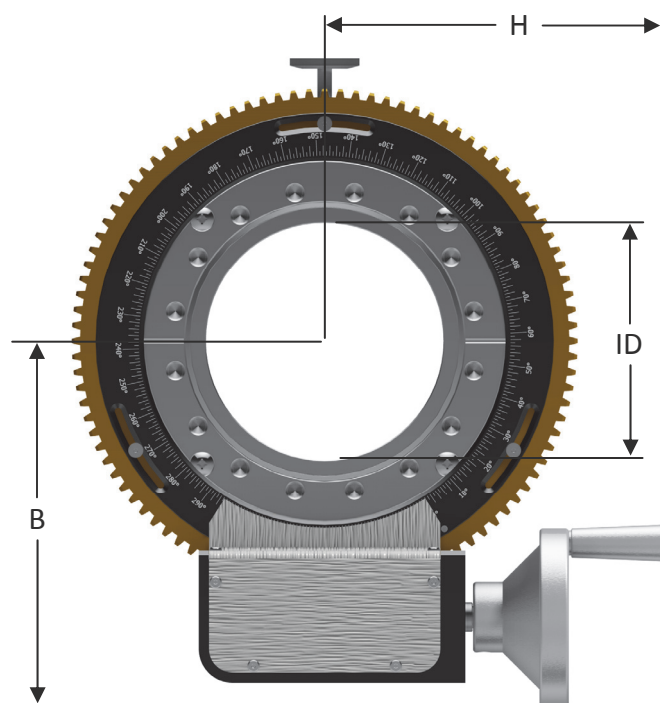
Dimensions: inches (mm)

MANUAL ROTA-PORT ROTATIONAL MOUNTING DEVICE

Material Exposed to Vacuum: 304 Stainless Steel & Teflon	FLANGE OD	PORT ID	B	C	T	H	WEIGHT (lbs.)	PART NUMBER
	4 1/2"	2.50	5.34	3.82	2.02	6.77	17.0	VF-274-450
	6"	4.00	6.21	4.70	2.02	6.77	22.0	VF-274-600

Rota-Ports are differentially pumped high vacuum rotational mounting devices which provide full rotational capability. Commonly used with cryostats and instrumentation feedthrough collars but will also support almost any combination of flange mounted devices.

The robust gearbox design works well with **motorized** applications. For additional sizes and custom options please call Technical Sales at **800-227-8059** for more details.



Specifications

Sealing Mechanism: Dual Teflon® Seals

Standard Mounting: V.U.F. Flanges, tapped holes

Exposed to Vacuum: Stainless Steel & Teflon®

Bakeout Temperature: 200°C

Operating Temperature: -20° to 150°C

Pressure Range: Atmosphere to 1×10^{-9} Torr
(Differentially pumped)

Resolution (dial): 1.0°

Repeatability: +/- 0.1°

Pump Port Size: KF 16 (ISO-KF) (other options available)

Maximum Dynamic Operating Load (vertical compression):

VF-274-450: 375 lbs.

VF-274-600: 500 lbs.

MANIPULATORS AND STAGES

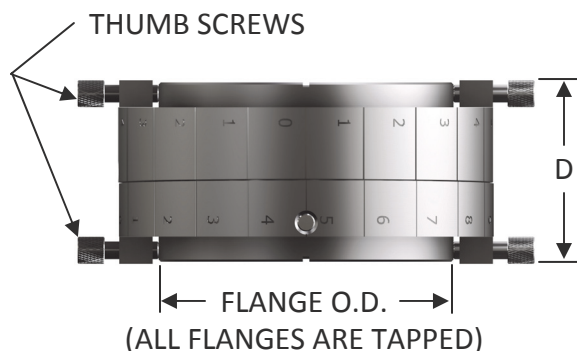
Section 5

Dimensions: inches (mm)

MANUAL ACCU-PORT TILT MOTION STAGE

Material Exposed to Vacuum: 304 Stainless Steel	FLANGE OD	BELLOWS ID	ANGULAR MOTION	INCLUDED ANGLE	D	WEIGHT (lbs.)	PART NUMBER
	1 1/3"	0.50	10°	20°	1.00	1.0	VF-175-133
	2 3/4"	1.39	2°	4°	1.38	2.5	VF-175-2
		1.39	10°	20°	1.38	2.5	VF-175-10

Other sizes available upon request. Please call for quote.



Specifications

Sealing Mechanism:

Welded Bellows

Position Locks: Thumb Screws

Bakeout Temperature: 200°C

Operating Temp: -20° to 150°C

Pressure Range: Atmosphere
to 1 x 10⁻¹¹ Torr

Angular Resolution:

10° Motion: 1°

2° Motion: .2°

Work Load:

1 1/3" VAC-U-FLANGE: 15 lbs.

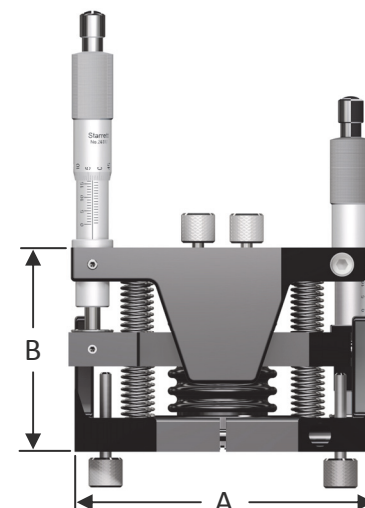
2 3/4" VAC-U-FLANGE: 30 lbs.

MANUAL GIMBAL ASSEMBLY

Material : Aluminum body	FLANGE OD	B	A	ADJUSTMENT	WEIGHT (lbs.)	PART NUMBER
	2 3/4"	3.00	4.5	THUMB SCREW	3.0	VF-171-275
		3.00	4.5	MICROMETERS	4.0	VF-171-275M
		3.00	4.5	THUMB SCREW	5.0	VF-171-275-155
		3.00	4.5	MICROMETERS	6.0	VF-171-275-155M

Other sizes available upon request. Please call for quote.

VF-171-275 = NO BELLOWS, NO MICROS.
VF-171-275M = NO BELLOWS, w/MICROS.
VF-171-275-155 = w/BELLOWS, NO MICROS.
VF-171-275-155M = w/BELLOWS & MICROS.



Specifications

Position Locks: Thumb Screws

Bakeout Temperature: 200°C

(Micrometers removed)

Operating Temp: -20° to 150°C

Tilt Motion: 30° included angle

Tilt resolution:

Micrometer: .01 mm

Work Load:

2 3/4" VAC-U-FLANGE®: 20 lbs.

Section 5

MANIPULATORS AND STAGES

Dimensions: inches (mm)

X - Y AXIS MANIPULATOR - 2 3/4" VAC-U-FLANGE®

Material: Aluminum body with Stainless steel VAC-U-FLANGE®	DESCRIPTION	WEIGHT (lbs.)	PART NUMBER
	Metric micrometer driven X-Y Manipulator without Bellows	7.0	TS-275
	Metric micrometer driven X-Y Manipulator, Tapped Flanges, with Bellows	7.5	TS-275-155

The TS-275 Series can be motorized, please call for quote.

Specifications

Sealing Mechanism:
Welded Bellows

Material Exposed to Vacuum:
Stainless Steel (Bellows)

Bellows ID: 1.25" (381 mm)

Bakeout Temperature:
200°C (Micrometers removed)

Operating Temp: -20° to 100°C

Pressure Range:

Atmosphere To 1×10^{-11} Torr
(Bellows model)

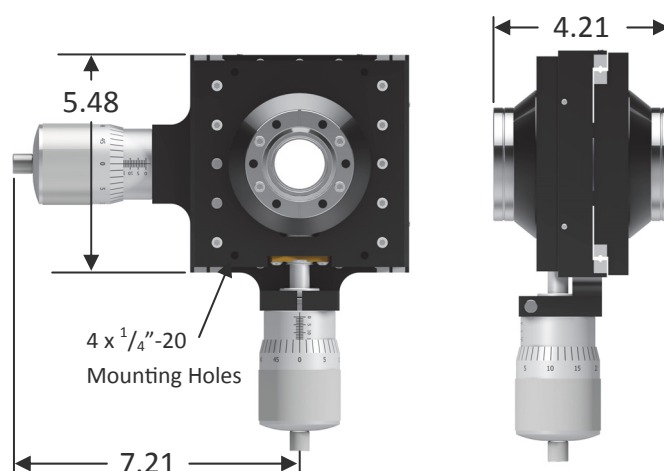
Operating Load: 50 lbs.

Micrometer:

Motion: +/- 12.5 mm or .5"

Resolution: .002 mm or .0001"

Flanges: Tapped, 1/4"-28



DIGITAL X - Y AXIS MANIPULATOR- 2 3/4" VAC-U-FLANGE®

Material: Aluminum body with Stainless steel VAC-U-FLANGE®	DESCRIPTION	WEIGHT (lbs.)	PART NUMBER
	Digital micrometer driven X-Y Manipulator, without Bellows	7.0	DTS-275
	Digital micrometer driven X-Y Manipulator, Tapped Flanges, with Bellows	7.5	DTS-275-155

Specifications

Sealing Mechanism:
Welded Bellows

Material Exposed to Vacuum:
Stainless Steel (Bellows)

Bellows ID: 1.25" (381 mm)

Bakeout Temperature:
200°C (Micrometers removed)

Operating Temp: 0° to 40°C

Pressure Range:

Atmosphere To 1×10^{-11} Torr
(with Bellows)

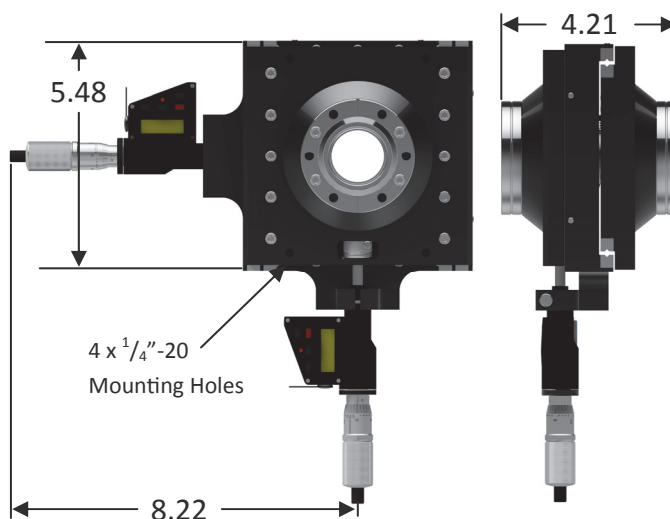
Operating Load: 50 lbs.

Micrometer:

Motion: +/- .5" (12.5 mm)

Resolution: .0001" (.002 mm)

Flanges: Tapped, 1/4"-28



MANIPULATORS AND STAGES

Section 5

Compact Z-Axis Manipulator

Huntington's compact Z-axis series of manipulators allow for installations with limited space. Featuring a smaller outline and simplified designs these manipulators are simple, rugged and cost-effective. Compact manipulators feature 2 ³/₄" or 4 ¹/₂" VAC-U-FLANGE® mounting in stroke lengths from 1 to 4". Operation is via a hand knob or 1/2" hex driver with visual positioning using an engraved scale. Edge welded stainless steel bellows and tapped VAC-U-FLANGES® create a robust vacuum envelope.

Dimensions: inches (mm)

COMPACT Z-AXIS MANIPULATOR - VAC-U-FLANGE®

FLANGE OD	STROKE	MINIMUM HEIGHT "A"	MINIMUM HEIGHT "B"	C	D	E	WEIGHT (lbs.)	PART NUMBER
2 ³ / ₄ "	1.0	8.71	2.20	6.33	3.00	1.74	8.0	CMZ-275-1
	2.0	8.71	2.20	6.33	3.00	1.74	9.0	CMZ-275-2
	4.0	11.32	2.95	6.33	3.00	1.74	11.0	CMZ-275-4
4 ¹ / ₂ "	1.0	8.71	2.20	7.87	3.63	2.40	8.0	CMZ-450-1
	2.0	8.71	2.20	7.87	3.63	2.40	9.0	CMZ-450-2
	4.0	11.32	2.95	7.87	3.63	2.40	11.0	CMZ-450-4



CMZ-450 shown,
CMZ-275 differs slightly in
appearance

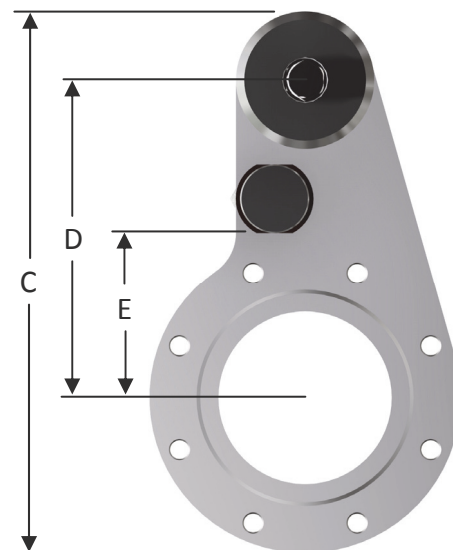
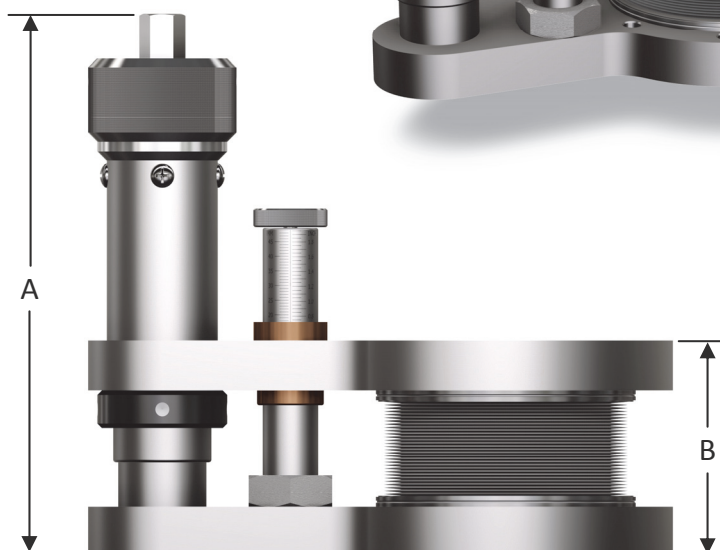
Specifications

Sealing Mechanism: Welded Bellows

Bakeout Temperature: 300°C (Bellows only)

Operating Temp: -20° to 230°C

Pressure Range: Atmosphere To 1 x 10⁻¹¹ Torr



MANIPULATORS AND STAGES

Huntington's Z-axis manipulators feature a robust backbone and a self-locking worm drive gearbox. The entire line has been upgraded to ensure greater accuracy and improve cost effectiveness. All PM & PMZ Series manipulators feature a tapped top flange with a clearance hole type bottom flange. For additional sizes or a custom design please call for quote.

Dimensions: inches (mm)

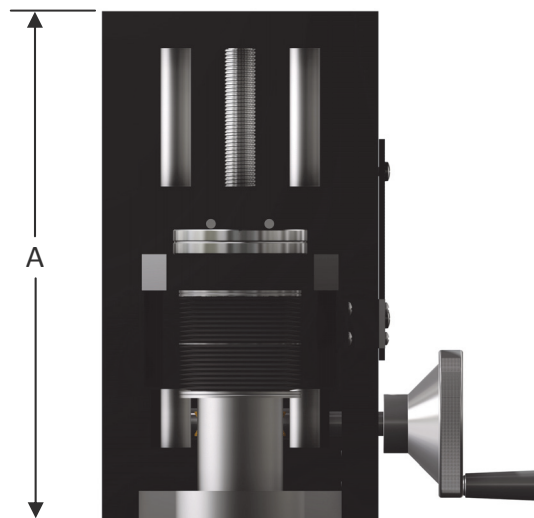
Z-AXIS MANIPULATOR - 2 ³/₄" VAC-U-FLANGE®

Material Exposed to Vacuum: Stainless Steel	STROKE	MINIMUM HEIGHT	"A"	WEIGHT (lbs.)	PART NUMBER
	2.0	4.70	8.375	26.0	PMZ-275-2
	4.0	4.70	10.38	26.4	PMZ-275-4
	6.0	4.70	12.38	28.4	PMZ-275-6
	8.0	5.75	15.43	30.4	PMZ-275-8

(PMZ-275-4 SHOWN)

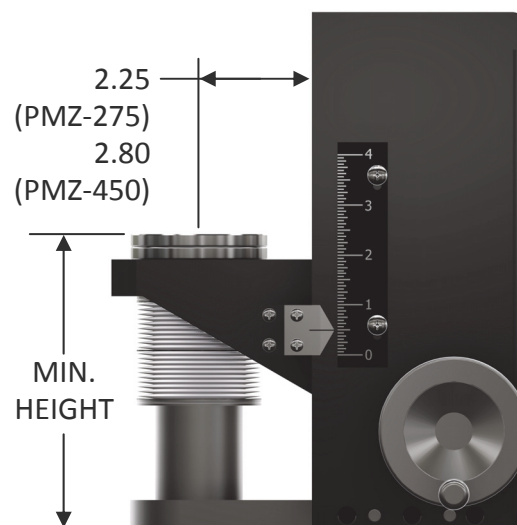


Angular motion, digital readout, motorized and other sizes available. Please call technical support for a quote.



Z-AXIS MANIPULATOR - 4 ¹/₂" VAC-U-FLANGE®

STROKE	MINIMUM HEIGHT	A	WEIGHT (lbs.)	PART NUMBER	PRICE \$
4.0	4.80	10.43	30.4	PMZ-450-4	6950
8.0	5.80	15.41	32.4	PMZ-450-8	7950
12.0	6.87	20.50	40.5	PMZ-450-12	8950



Specifications

Sealing Mechanism: Welded Bellows
Bakeout Temperature: 300°C (Bellows only)
Operating Temp: -20° to 150°C

Bellows ID: 1.50" (-275), 2.50" (-450)
Pressure Range: Atm. to 1 x 10⁻¹¹ Torr
Work Load: 22 lbs. concentric

MANIPULATORS AND STAGES

Section 5

Dimensions: inches (mm)

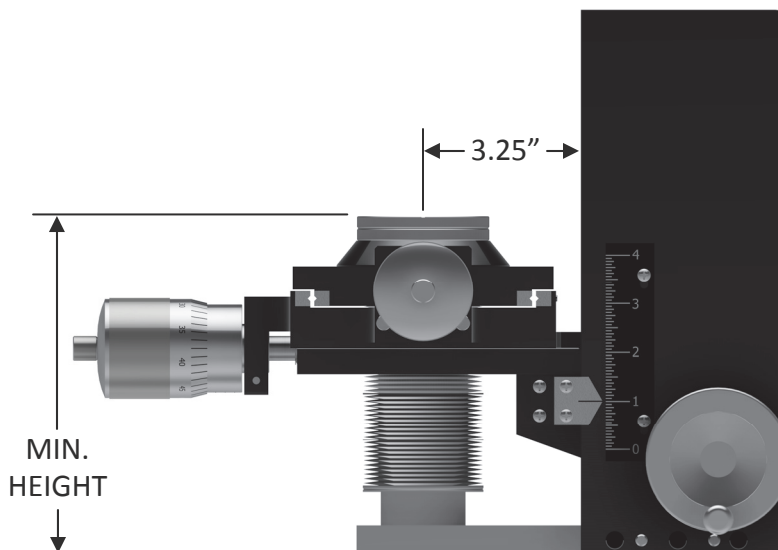
X - Y - Z MANIPULATOR, 2 ³/₄" VAC-U-FLANGE®

Material Exposed to Vacuum: Stainless Steel		STROKE	MINIMUM HEIGHT	A	WEIGHT (lbs.)	PART NUMBER
		2.0	6.75	9.25	36.0	PM-275
		4.0	6.75	11.25	36.6	PM-275-4Z
		6.0	7.50	14.00	38.6	PM-275-6Z
		8.0	8.40	16.80	40.6	PM-275-8Z

Angular motion, digital readout, motorized and other sizes available. Please call technical support for quote.



(PM-275-4 SHOWN)



Specifications

Sealing Mechanism: Welded Bellows

Bellows ID: 1.50" (-275), 2.50" (-450)

Bakeout Temperature:

300°C (Bellows only)

Operating Temperature:

-20° to 150°C

Pressure Range:

Atmosphere To 1 x 10⁻¹¹ Torr

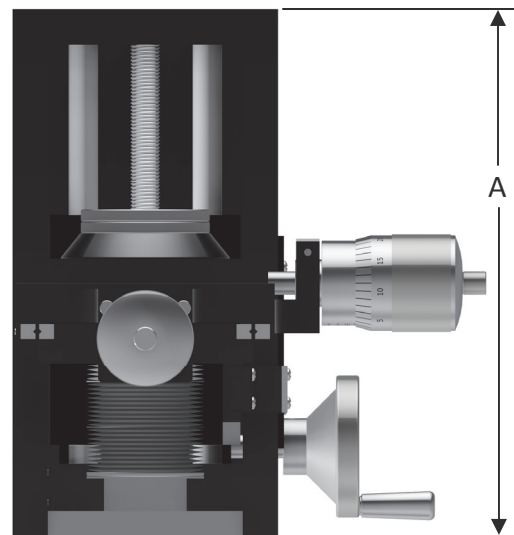
X-Y Motion: +/- 12.5 mm

Position Resolution (Micrometer):

.002 mm or .5"

X - Y - Z MANIPULATOR, 4 ¹/₂" VAC-U-FLANGE®

STROKE	MINIMUM HEIGHT	A	WEIGHT (lbs.)	PART NUMBER
4.0	8.40	13.50	39.6	PM-450-4Z
8.0	8.40	17.50	41.6	PM-450-8Z
12.0	9.40	22.50	43.6	PM-450-12Z



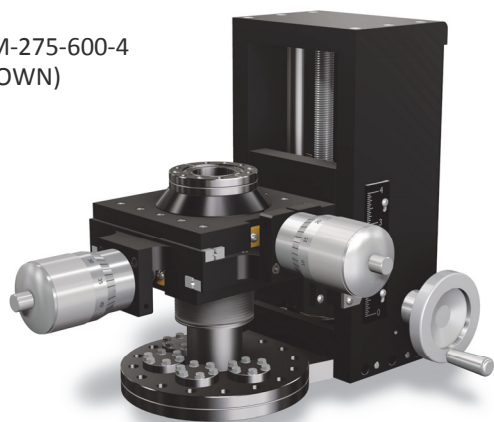
Section 5

MANIPULATORS AND STAGES

Dimensions: inches (mm)

X - Y - Z MANIPULATOR w/MULTIPORT FLANGE

Material Exposed to Vacuum: Stainless Steel	STROKE	MINIMUM HEIGHT	A	WEIGHT (lbs.)	PART NUMBER
(PM-275-600-4 SHOWN)	2.0	6.85	9.35	40.1	PM-275-600
	4.0	6.85	11.35	40.7	PM-275-600-4
	6.0	7.60	14.10	42.7	PM-275-600-6
	8.0	8.50	16.90	44.7	PM-275-600-8



Angular motion, digital readout, motorized and other sizes available. Please call technical support for quote.

Specifications

Sealing Mechanism: Welded Bellows

Bellows ID: 1.50" (38.9 mm)

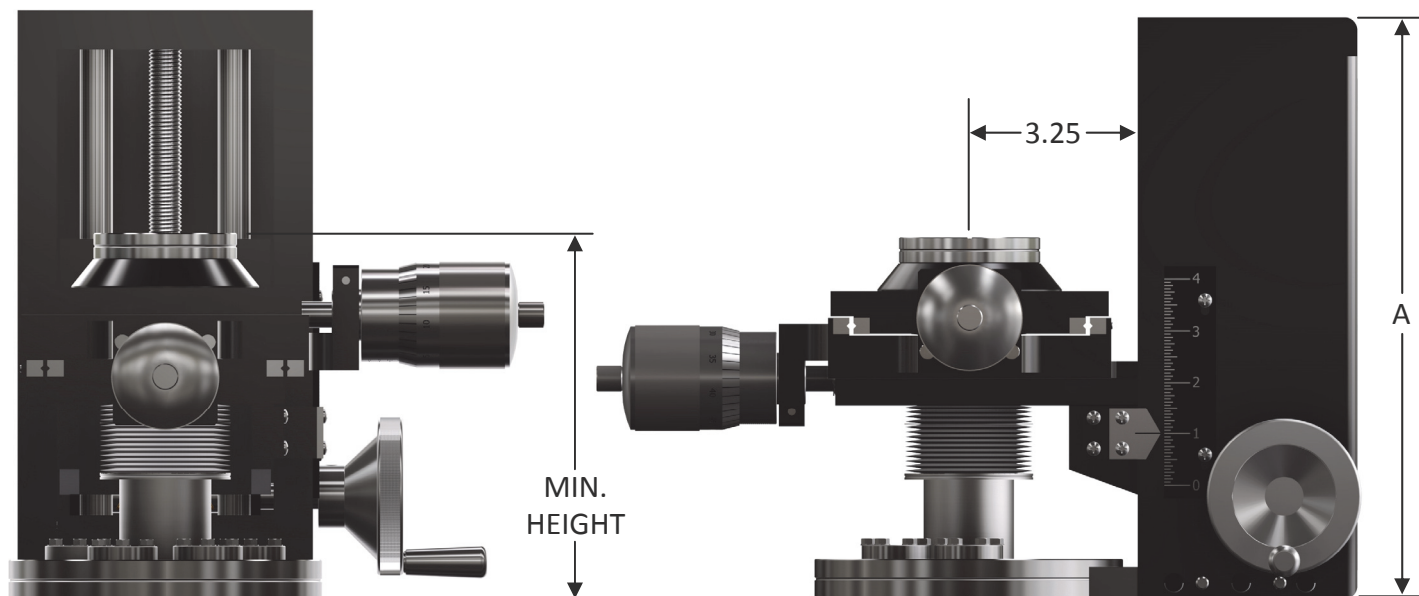
Bakeout Temperature: 300°C (Bellows only)

Operating Temp: -20° to 150°C

Pressure Range: Atmosphere To 1×10^{-11} Torr

X-Y Motion: +/- 12.5 mm or .5"

Position Resolution (Micrometer): .002 mm or .0001"



The Huntington Series PM-275-600 ultra-high vacuum precision manipulator is mounted on a 6" O.D. base flange with four 1 1/3" O.D. blanked mini ports for accessory feedthrough mounting. The standard model includes X-Y-Z motion. Large drum micrometers provide accurate readings in the X and Y axis. All micrometers should be removed before bake-out above 250°C.



Huntington
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