LF-BE

Large Format
Base Economy Platform

VK-X & VR Measurements, Over Larger Areas

PEAK™ METROLOGY

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Contents

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LF-BE

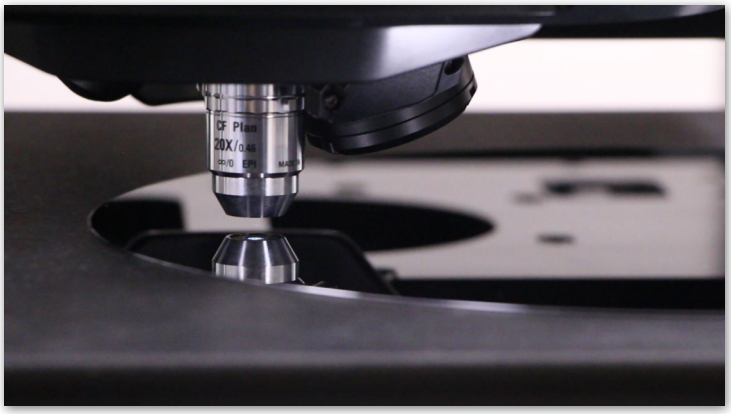
Large Format Base Economy Platform

FAST DELIVERY AVAILABLE

QUICK AND EASY INSTALLATION

How Does it Work?

Larger stages increase the measuring area and sample payload capacity. The motion is controlled directly by the internal Keyence stage controller and the user works 100% from the Keyence software interface (VK Viewer or VR Viewer).



Wafer scanning with the VK-X microscope

Works with Keyence VK-X and VR heads

More Travel, More Payload

Quickly and easily upgrade your inspection volume to 310x310x57mm while also supporting payloads up to 35 kg (75 lbs). Start measuring your large parts quickly with the LF-BE - no rigging required, no special facility requirements, no hassle.

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Specs

LF-BE Specifications	
Inspection Volume	310 x 310 x 57 mm
Maximum Part Thickness	207 mm (-SP5 option) with 57 mm Vertical Adjustment
XY Performance	
Accuracy	± 10 µm
Repeatability	± 1 µm
Max Jog Speed	25 mm/sec
Mass Information	
Base System	60 kg
Air Isolation (-ISO3, optional)	28 kg
VK-X / VR Measurement Head	11 / 13 kg
Spacers (-SPx, optional)	2 kg (per block)
Table Top (-TT, optional)	1 kg
Vacuum Line Routing (-VAC, optional)	2 kg
Tip Tilt Stage (-TIPTILT, optional)[1]	5 kg
Vacuum Chuck (-VZR, optional)[1]	13 kg
Mechanical Specifications	
Payload Capacity	35 kg
MTBF (Mean Time Before Failure)	20,000 Hours

[1]Accessory sold on separate line, option required for integration

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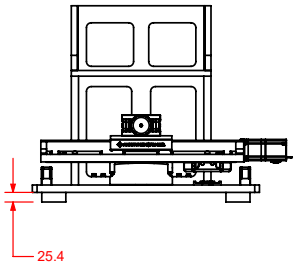
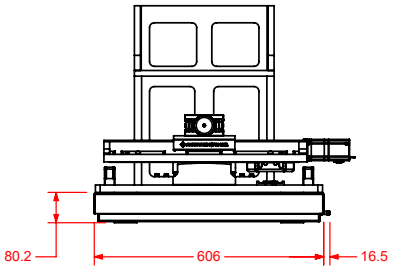
Dimensions

AXIS	NOMINAL TRAVEL	LIMIT TRAVEL
X	310	326
Y	310	326
Z	57.3	57.3

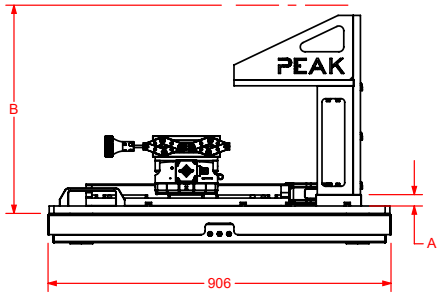
SPACER	A	B (-VK)	B (-VR)
NONE	0	505	552
-SP1	30	535	582
-SP2	60	565	612
-SP3	90	595	642
-SP4	120	625	672
-SP5	150	655	702



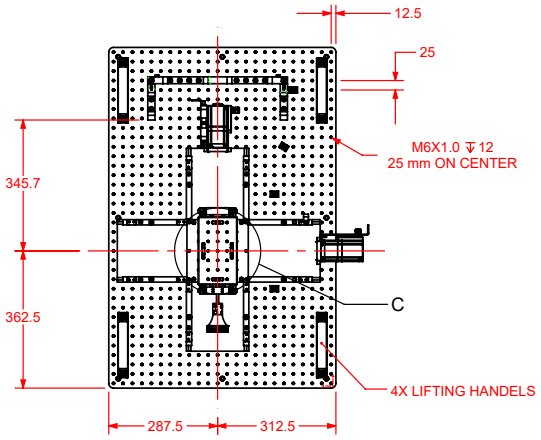
(-ISO1) ELASTOMER



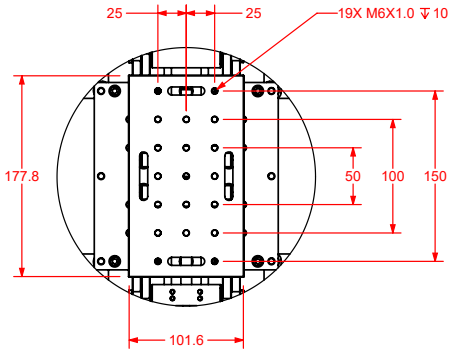
(-ISO3) PASSIVE AIR



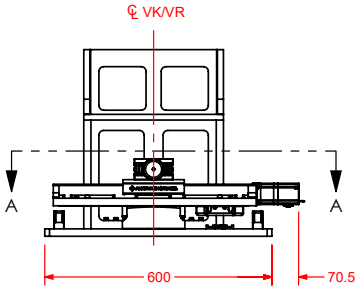
(-ISO3-SP1) PASSIVE AIR, 30 mm SPACER

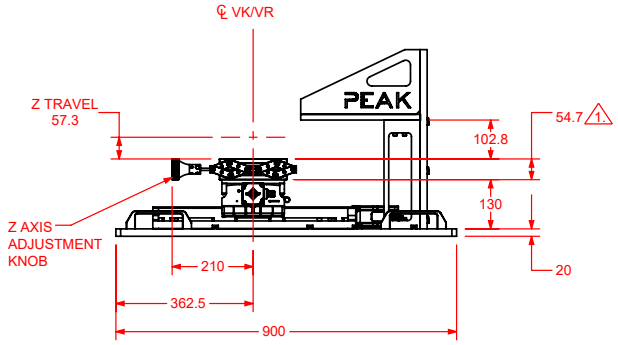


SECTION A-A



DETAIL C
SCALE 1 : 6





NOTES:

1. Z-AXIS SHOWN AT THE MINIMUM TRAVEL POSITION
2. -SP(X) OPTION WILL INCREASE THE IMAGE PLANE HEIGHT BY THE CORRESPONDING "A" DIMENSION

DIMENSIONS: MILLIMETERS

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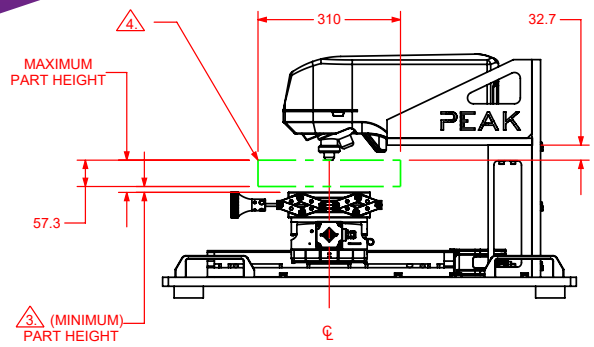
Dimensions

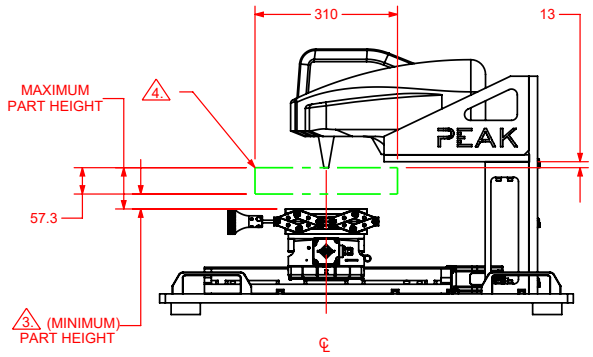
-VK MICROSCOPE



(MINIMUM) AND MAXIMUM ALLOWABLE PART THICKNESS

Accessory	None	-SP1	-SP2	-SP3	-SP4	-SP5
None	(12.5) 70	(42.5) 100	(72.5) 130	(102.5) 160	(132.5) 190	(162.5) 220
-TT	(2.5) 60	(32.5) 90	(62.5) 120	(92.5) 150	(122.5) 180	(152.5) 210
-PM-FP-360	(0) 57.5	(30) 87.5	(60) 117.5	(90) 147.5	(120) 177.5	(150) 207.5
-WP	(0) 55	(27.5) 85	(57.5) 115	(87.5) 145	(117.5) 175	(147.5) 205
-WPR	(0) 45	(17.5) 75	(47.5) 105	(77.5) 135	(107.5) 165	(137.5) 195
-VZR 5	(0) 21	(0) 51	(23.5) 81	(53.5) 111	(83.5) 141	(113.5) 171
-TIPTILT 5	NA	NA	(0) 43	(15.5) 73	(45.5) 103	(75.5) 133
-TIPTILT-WP 5	NA	NA	NA	(0) 57.5	(30) 87.5	(60) 117.5
-TIPTILT-WPR 5	NA	NA	NA	(0) 47.5	(20) 77.5	(50) 107.5
-TIPTILT-VZR 5	NA	NA	NA	(0) 34	(6.5) 64	(36.5) 94

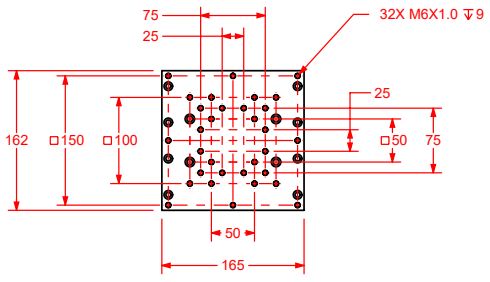
-VR MICROSCOPE



(MINIMUM) AND MAXIMUM ALLOWABLE PART THICKNESS

Accessory	None	-SP1	-SP2	-SP3	-SP4	-SP5
None	(32.5) 90	(62.5) 120	(92.5) 150	(122.5) 180	(152.5) 210	(182.5) 240
-TT	(22.5) 80	(52.5) 110	(82.5) 140	(112.5) 170	(142.5) 200	(172.5) 230
-PM-FP-360	(19.5) 77	(49.5) 107	(79.5) 137	(109.5) 167	(139.5) 197	(169.5) 227
-WP	(17) 74.5	(47) 104.5	(77) 134.5	(107) 164.5	(137) 194.5	(167) 224.5
-WPR	(7) 64.5	(37) 94.5	(67) 124.5	(97) 154.5	(127) 184.5	(157) 214.5
-VZR 5	(0) 40	(12.5) 70	(42.5) 100	(72.5) 130	(102.5) 160	(132.5) 190
-TIPTILT 5	NA	NA	(5) 62.5	(35) 92.5	(65) 122.5	(95) 152.5
-TIPTILT-WP 5	NA	NA	(0) 47.5	(20) 77.5	(50) 107.5	(80) 137.5
-TIPTILT-WPR 5	NA	NA	(0) 37.5	(10) 67.5	(40) 97.5	(70) 127.5
-TIPTILT-VZR 5	NA	NA	NA	(0) 53.5	(26) 83.5	(56) 113.5

-TT ACCESSORY OPTION

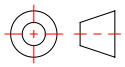


NOTES:

1. Z-AXIS SHOWN AT THE MINIMUM TRAVEL POSITION
2. -SP(X) OPTION WILL INCREASE THE IMAGE PLANE HEIGHT BY THE CORRESPONDING "A" DIMENSION
3. MINIMUM PART THICKNESS OR FIXTURE HEIGHT REQUIRED TO REACH THE MEASUREMENT VOLUME
4. MEASUREMENT VOLUME
5. LF-BE MUST BE CONFIGURED AS "-VZR" OR "-TIPTILT" TO INTEGRATE THESE ACCESSORY OPTIONS.

SPACER	A 2
NONE	0
-SP1	30
-SP2	60
-SP3	90
-SP4	120
-SP5	150

DIMENSIONS: MILLIMETERS



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Ordering

Required

LF-BE -ISO1 -VK -TIPTILT -SP1

Product

Isolation

-ISO1: Elastomer

-ISO3: Passive Air

Microscope Head[1]

-VR: VR-5100/5200/6100/6200

-VK: VK-X1050/1100/3050/3100

Accessory*

-TIPTILT[2]: ThetaX / ThetaY Stage

-VZR[2]: Vacuum Chuck

-TT: Table Top

-VAC: Vacuum Line Routing

Spacer*

-SP1: 30 mm Spacer

-SP2: 60 mm Spacer

-SP3: 90 mm Spacer

-SP4: 120 mm Spacer

-SP5: 150 mm Spacer

* Optional - omit if not desired

[1] Provided by Keyence

[2] Tip-tilt stage and vaccum chuck sold on separate line, option required for integration

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Ordering

What's included?

Base Product
- Motorized XY stage
- Manual V stage
- Stage control cable to Keyence controller
- Lifting handles for easy positioning
- Breadboard baseplate
- Electric driver for quickly adjusting V axis

Isolation Plate (optional)
- One-time fill vibration isolation plate
- Manual pump for initial inflation

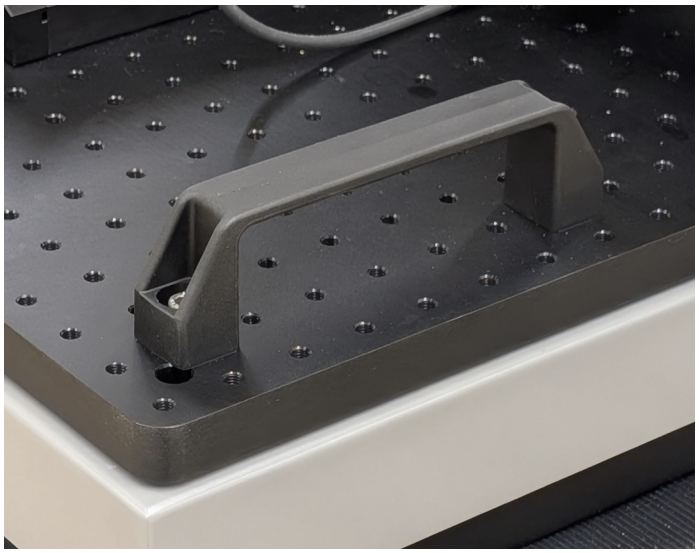
LF-BE Isolation Plate (-ISO3, optional)

Adapt to your needs

Thick parts? Add our spacer blocks to make room for your parts while preserving vertical adjustment. Easily add up to 150 mm of additional clearance.

Make part fixturing easy with our compatible Fixture Plates featuring both vacuum part holding or breadboard mounting options. See the end of this catalog for more details!

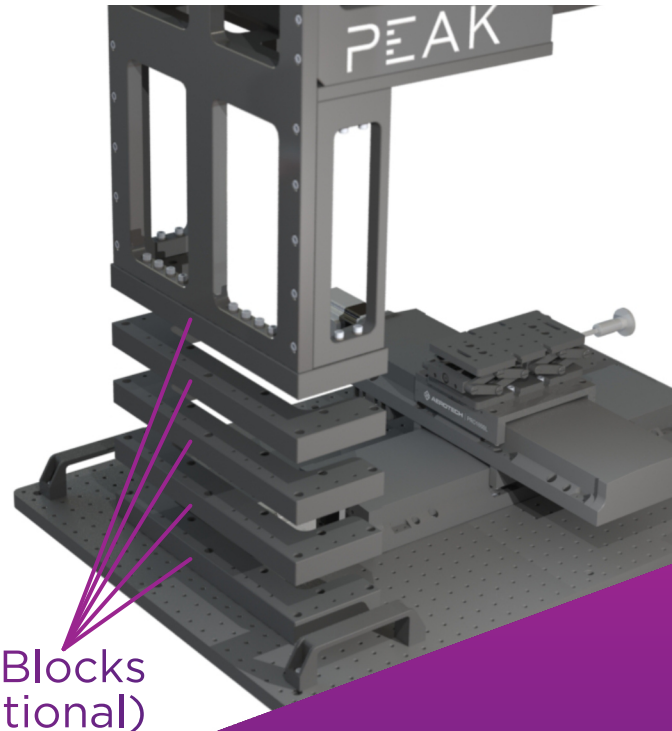
Need even more travel, higher performance, or advanced automation capabilities? See our LF-B and LF-X product lines for standard offerings up to 600x600 mm and/or advanced automation software designed to bring the VK-X into your production environment.



LF-BE Lifting Handle and Breadboard baseplate

Control for your environment

We'll work with you to characterize your floor vibrations and identify any necessary isolation measures to preserve measurement performance. Our standard air isolation systems are available to make sure your measurements are rock solid. See our white paper for full details.



Spacer Blocks (Optional)

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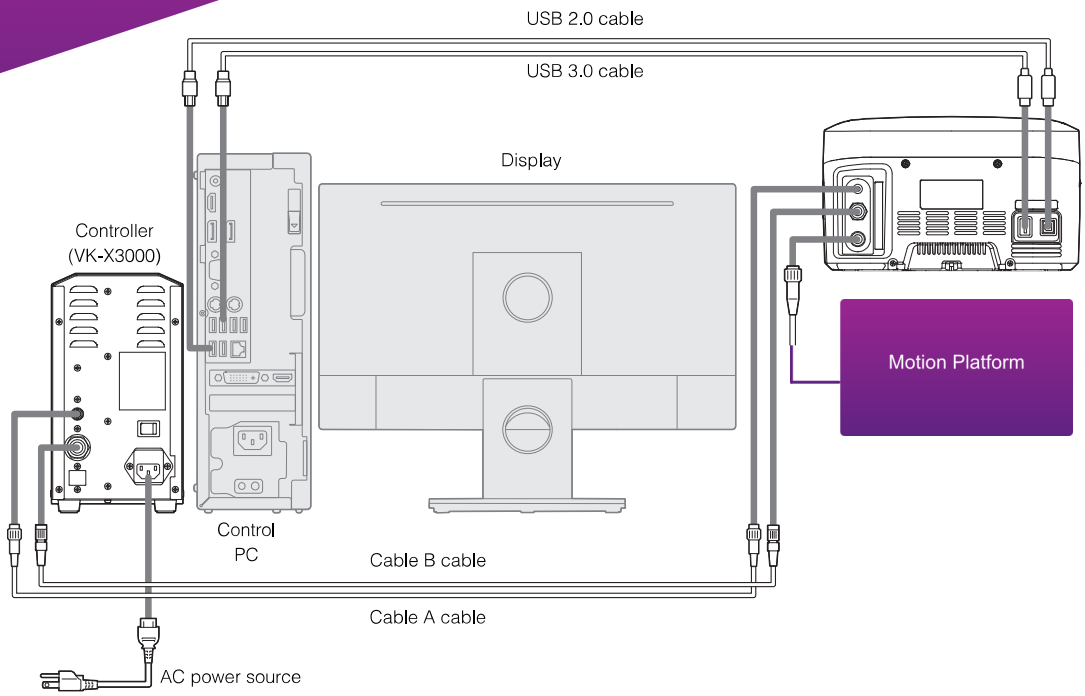
VK-X Kit



Complete the system

Peak provides all the motion equipment you need to be up and running in no time. The Keyence equipment listed below is required to complete the system. Have questions? Don't hesitate to contact us for answers on what is required.

Microscope Head

VK-X1050*, VK-X1100*, VK-X3050, or VK-X3100

Controller

VK-X1000 or VK-X3000

Software

VK-A3 Viewer and Analyzer (comes standard)

VK-H3J Image Stitching Module (as needed)

VK-H3CA CAD Comparison Module (as needed)

Cables

Cable A and Cable B in 2 m lengths

USB2.0 Type B Male to USB Type A Male in 2 m length

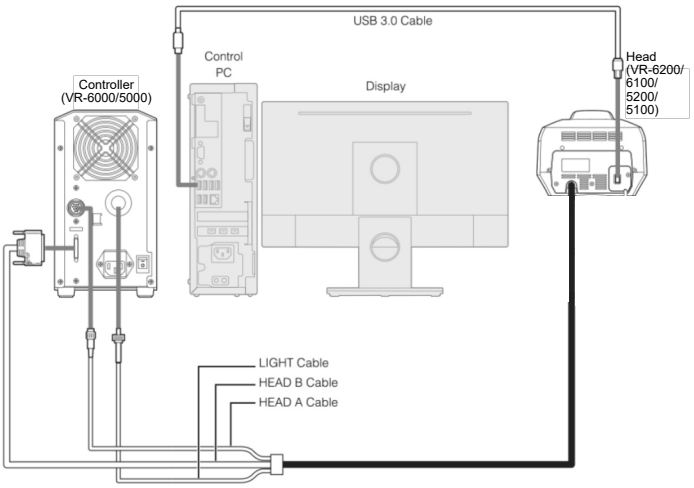
USB3.0 Type Micro B Male to USB Type A Male in 2 m length

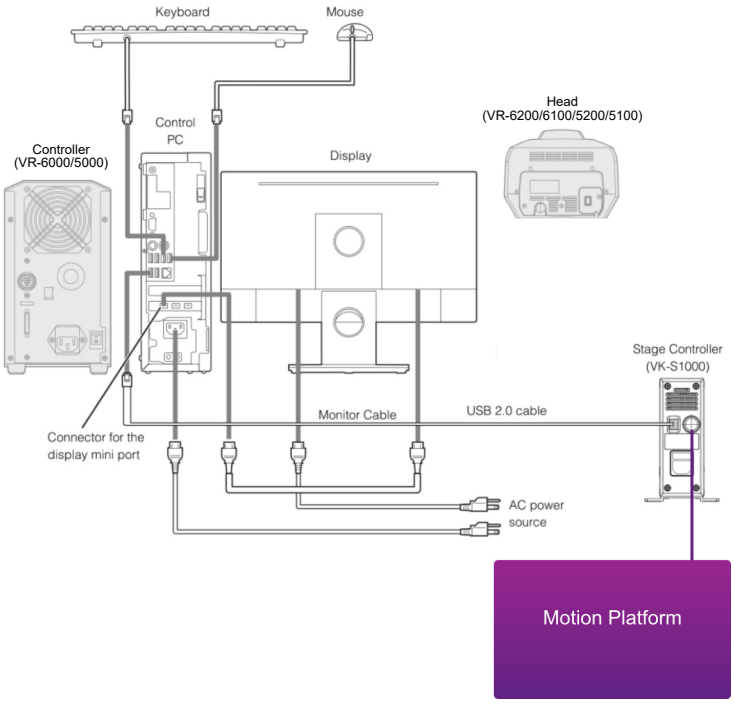
Control PC

Provided by Keyence (optional)

*Contact Peak for support connecting previous generation VK models

VR Kit





Complete the system

Peak provides all the motion equipment you need to be up and running in no time. The Keyence equipment listed below is required to complete the system. Have questions? Don't hesitate to contact us for answers on what is required.

Microscope Head

VR-5100*, VR-5200*, VR-6100, or VR-6200

Controller

VR-5000 or VR-6000

Stepper Controller

VK-S1000K

Software

VR-A2 VR Viewer Software (comes standard)

VR-H4J Measurement Expansion Module (as needed)

Cables

USB2.0 Type B Male to Type A Male in 2 m length

USB3.0 Type A Male to Type A Male in 2 m length

Control PC

Provided by Keyence (optional)

*Contact Peak for support connecting previous generation VR models

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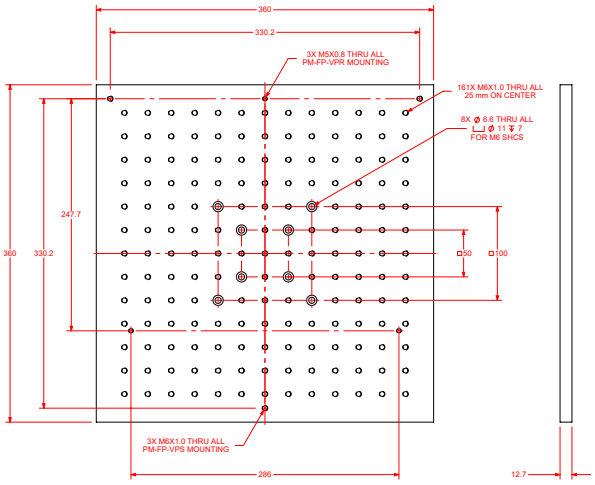
Fixtures

PM-FP-P360

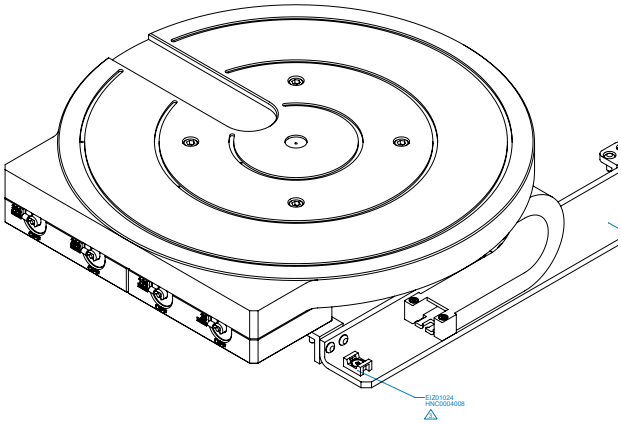
360 mm Square Tooling Plate



PM-FP-VZR

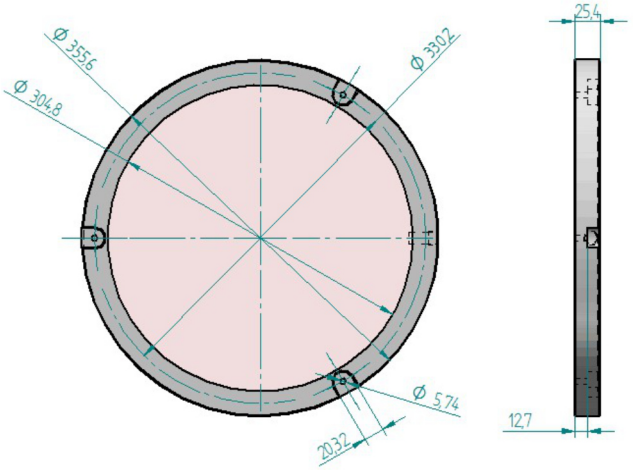
300 mm Dia Zone-Selectable Vacuum Chuck

Zones: 25, 100, 200, and 300 mm Diameters



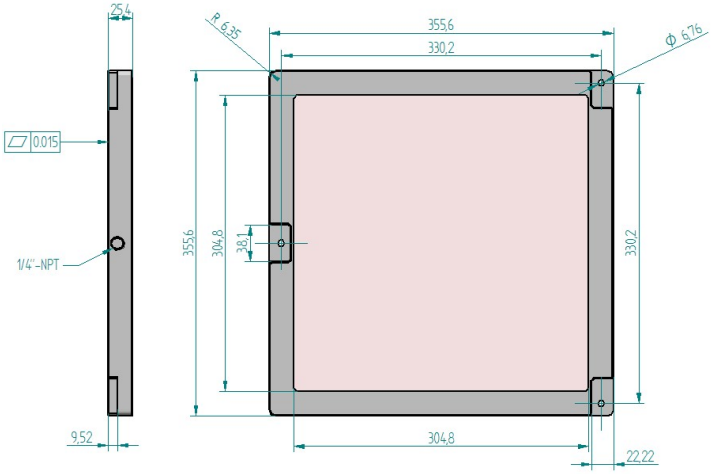
PM-FP-VPR

300 mm Diameter Porous Vacuum Chuck



PM-FP-VPS

300 mm Square Porous Vacuum Chuck

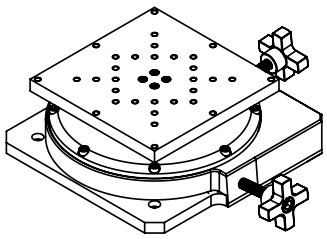


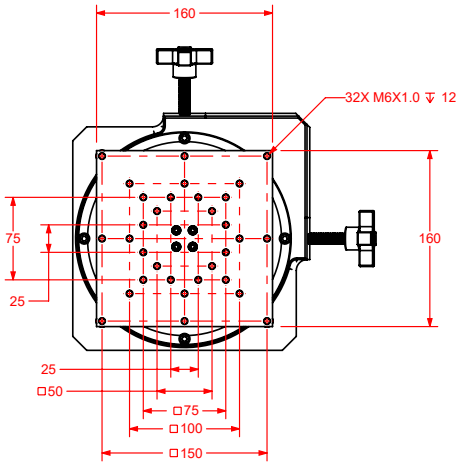
Fixtures

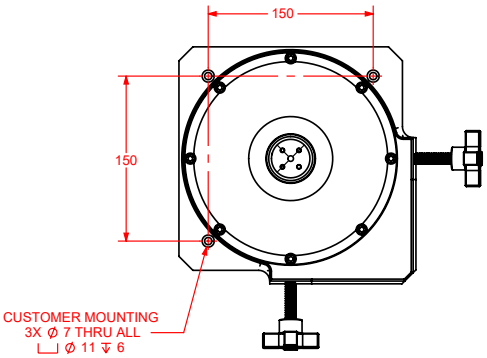
PM-TIPTILT

+/-5° Tip Tilt Stage
(sold as a separate line item)

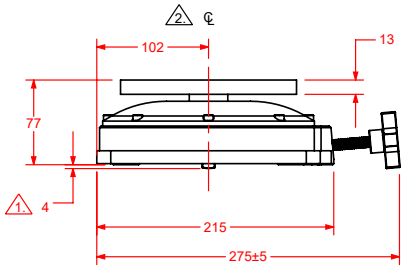
AXIS	NOMINAL TRAVEL
THETA X	5°
THETA Y	5°

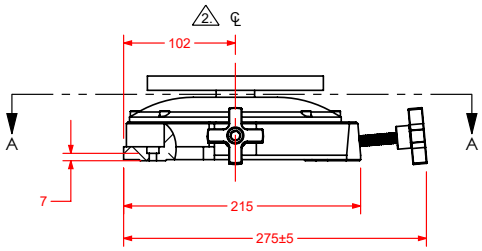




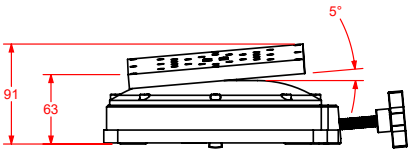


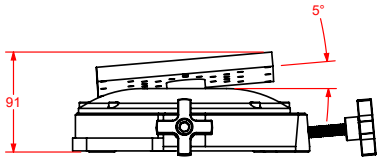
SECTION A-A





STAGE SHOWN AT EXTENT OF NOMINAL TRAVEL
THETA X & Y: 5°





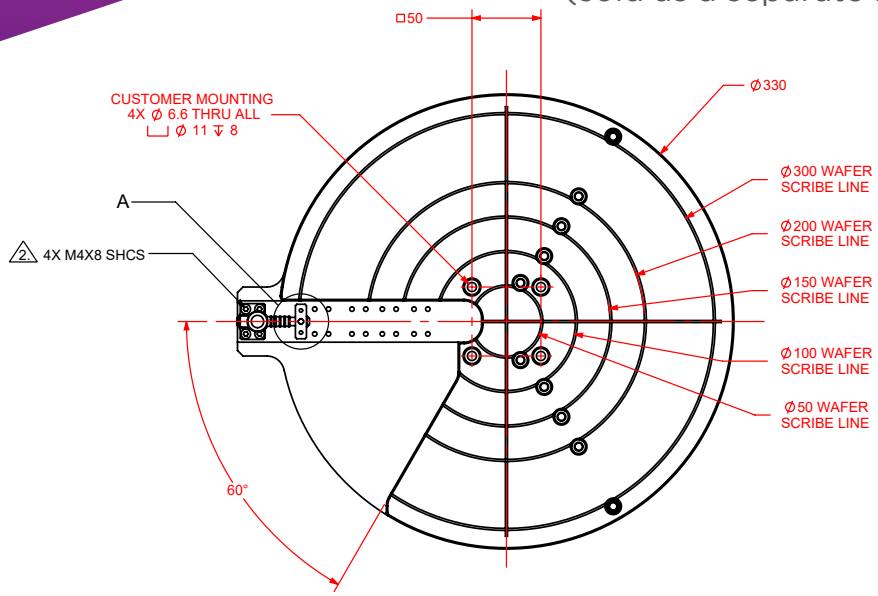
NOTES:

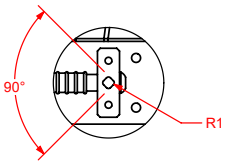
1. ADJUSTMENT KNOBS EXTEND BELOW STAGE MOUNTING SURFACE
2. MAXIMUM PAYLOAD 25 KG. CG OF 25 KG PAYLOAD CAN NOT EXCEED 50 MM FOR STAGE CENTER LINE

DIMENSIONS: MILLIMETERS

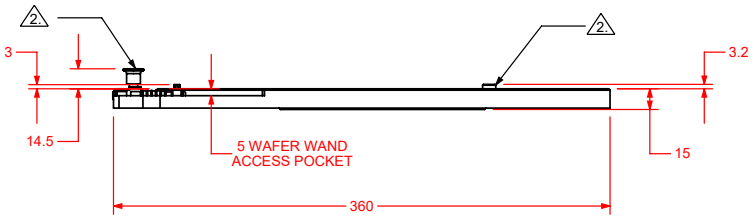
PM-FP-WP(R)

Wafer Plate with optional Rotation
(sold as a separate line item)

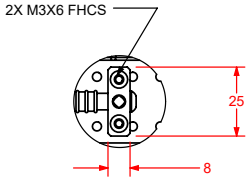




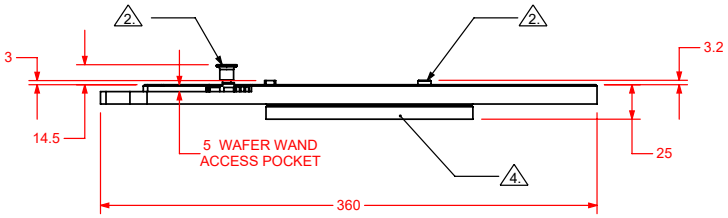
3. DETAIL A
PLUGER IN NOTCH CONFIGURATION
(Ø200 & Ø300 mm WAFERS)
SCALE 2 : 5



PM-FP-WP



3. DETAIL A
PLUGER IN FLAT CONFIGURATION
(Ø50, Ø100, & Ø150 mm WAFERS)
SCALE 2 : 5



PM-FP-WPR

NOTES:

1. PM-FP-WP SHOWN IN THE Ø 300 MM WAFER CONFIGURATION
   PM-FP-WPR SHOWN IN THE Ø 150 MM WAFER CONFIGURATION

2. QUANITY (2) ALIGNMENT BUSHINGS AND (1) SPRING LOADED PLUGER CAN BE POSITIONED TO ACOMMIDATE Ø50, Ø100, Ø150, Ø200, & Ø300 mm WAFERS

3. SPRING LOADED PLUGER HAS (2) CONFIGURATIONS. FLAT FOR Ø50, Ø100, & 150 mm WAFERS AND NOTCH FOR Ø200 & Ø300 mm WAFERS

4. PM-FP-WPR HAS A 360° MANUAL ADJUSTABLE BASE

DIMENSIONS: MILLIMETERS