

MITUTOYO - HEIGHT MASTER**HEIGHT MASTER**

High Accuracy CERA Height Master - Series 515	V-2
Height Master - Series 515	V-3
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High Accuracy CERA Height Master

Series 515

Features

- The measuring blocks are made from a zirconium-based ceramic material which is highly resistant to corrosion and wear, and free from deterioration over time.
- The measuring block currently used is indicated by LEDs, resulting in easy operation.
- Two measurement modes: ABS (absolute) mode which displays the height from the surface plate to the surface of the measuring block, and INC (incremental) mode. Presetting is also possible (which is useful when the Height Master is used with riser blocks).
- For Block travel (1"), there are two wheels.
Coarse Feeding: .02"/Rev.
Fine Feeding: .0006"/Rev.
- Ceramic gage block (.3") is supplied for zero setting.
- Certificate of inspection is attached.
- Fitted wooden case is supplied.
- Mitutoyo SPC Output*

Accuracy

- Block pitch: $\pm .00002$ "
- Parallelism of blocks: .00002"
- Block feeding error: $\pm .00002$ "

Dimensions

- 5.9"(W) x 18.3"(H) x 5.5"(D).

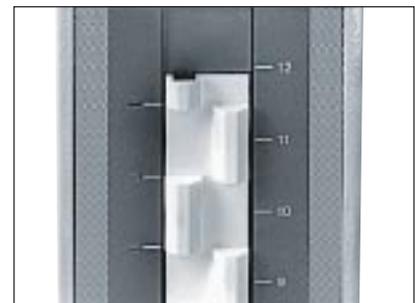


Optional Accessory

940269 RS-232 Output unit



.000005" resolution
Digital display
Function Keys



LED indicating the block in use.

Specifications

High Accuracy CERA Height Master

Inch/Metric

Order No.	Range	Block arrangement	Block step	Resolution	Weight
515-342A	.2"–12"	Staggered.	1 inch	.000005"/.0001mm	39.6 lbs

*SPC Connecting Cables No. 936937 (1m) or 965014 (2m).

Height Master Series 515

The Height Master features a stack of reference blocks and a speed dial type micrometer head housed in a rigid, cast iron frame.

Features

- Contains accurate reference block stack, which easily provides a desired height.
- Models with staggered design of block stack have two measuring faces on the same level, one facing up and the other facing down. (515-311, 515-322)
- Speed dial type micrometer head for rapid setting of desired heights.
- Rigid construction to ensure stable height measurement and a long service life.
- Three carbide tipped pads lapped to serve as an accurate reference on the surface plate and ensure durability.
- Each Height Master is supplied with a gage block for zero setting.
- Fitted wooden case supplied.

Certificate of Accuracy

Each MITUTOYO Height Master is supplied with a Certificate of Accuracy traceable to the National Institute of Standards and Technology. It certifies the measuring block accuracy, (which is calibrated from surface plate to the top land of each measuring block) and lead screw accuracy.

Dimensions

- 5.9"(W) x 17.1"(H) x 5.3"(D)

Optional accessories

515-119	Clamping Block kit for Bore Gage (515-310)
515-121	Clamping Block kit for Bore Gage (515-311)
515-112	Clamping Block kit for Bore Gage (515-322)
Riser Blocks	(See listing)

Specifications

Height Master

Inch

Order No.	Range	Block Arrangement	Block Step	Graduation	Block Pitch Accuracy	Parallelism of Block	Micrometer Head Accuracy	Weight
515-310	.2-12.5"	Straight	.5"	.00001"	±.00005"	.00004"	±.00005"	47.1 lbs
515-311	.2-12.5"	Staggered	1"	.00001"	±.00005"	.00004"	±.00005"	50.6 lbs

Metric

Order No.	Range	Block Arrangement	Block Step	Graduation	Block Pitch Accuracy	Parallelism of Block	Micrometer Head Accuracy	Weight
515-322	5-310mm	Staggered	20mm	0.001mm	±1.5µm	±1µm	±1µm	23 kg

515-310



Digimatic E-Type Height Master Series 515

These E-Type Height Masters have a built-in LCD Readout with resolution to .0001"/0.001mm. With the easy to read Digimatic display, height calibration is made quick and efficient with virtually no chance of reading error. SPC output is also provided for record keeping and data processing.

Features

- Standard model with a digital display, featuring all essential specifications required for a versatile height standard.
- Functions of the display include: Zero-setting, Origin setting, Origin restoration, Inch/mm conversion, Presetting, Data hold, Auto-sleep.
- Specifications of the digital display: 6-digit LCD powered by an SR44 battery (**541980**)
Battery life: Approx. 6 months (4000 hours) under normal use (battery supplied).
- Provided with a data output port for connection with the M-SPC (Mitutoyo Statistical Process Control) system.
- Can be used with riser block (optional).
- Each Height Master is supplied with a gage block for zero setting.
- Certificate of inspection is attached to each Height Master.

Block Pitch Accuracy

- ± 0.0001 " for up to 18"
 ± 0.0015 mm for up to 300mm
 ± 0.0025 mm for up to 450mm
- ± 0.0015 " for up to 24"
 ± 0.0035 mm for up to 600mm

Specifications

Digimatic E-Type Height Master

Inch/Metric

Order No.	Range	LCD Resolution	Parallelism of Block	Micrometer Head Accuracy	Height	Weight
515-355	.5–12"	.0001"/0.001mm	.00005"	± 0.0001 "	19.0"	20.9 lbs
515-357	.5–18"	.0001"/0.001mm	.0001"	± 0.0001 "	24.9"	29.9 lbs
515-359	.5–24"	.0001"/0.001mm	.0001"	± 0.0001 "	30.8"	35.2 lbs

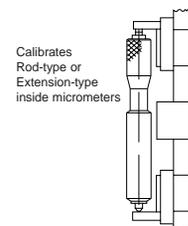
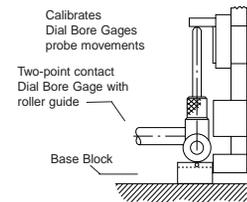
E-Type Height Master

Metric

Order No.	Range	LCD Resolution	Parallelism of Block	Micrometer Head Accuracy	Height	Weight
515-354	10–310mm	0.001mm	0.002mm	± 0.002 mm	482mm	9.5kg
515-356	10–460mm	0.001mm	0.0025mm	± 0.002 mm	632mm	13.6kg
515-358	10–610mm	0.001mm	0.0025mm	± 0.0025 mm	782mm	16.0kg



Application Examples with Accessories



Optional Accessories

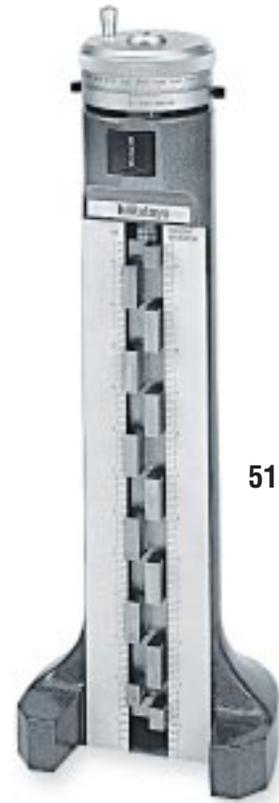
050019	Fitted Mahogany Case for 12" model.
050059	Fitted Mahogany case for 18" or 24" model
515-120	Clamping Block kit for Bore Gages (inch)
515-111	Clamping Block kit for Bore Gages (mm)
937387	SPC output Connecting Cable (1m)
965013	SPC output Connecting Cable (2m)
541980	Replacement battery
Riser Blocks (See listing)	

E-Type Height Master Series 515

The E-TYPE HEIGHT MASTER, a slimmer version of the standard height master, features all essential specifications required in a versatile height standard.

Features

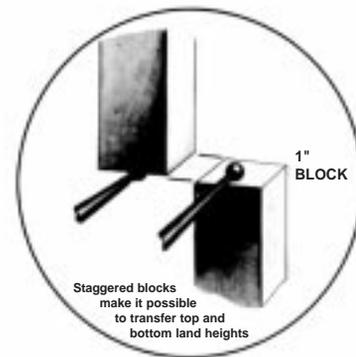
- Smallest Reading .0001"
Smallest graduation on the micrometer thimble is .0001" direct. Zero point of the thimble is fully adjustable for calibration purposes.
- Staggered Measuring Block Configuration
Spacing of the measuring blocks is either 1". With the staggered block arrangement, both top and bottom land height at a desired point which can be obtained without moving the micrometer head.
- Digital Counter .0001"
Three-digit counter provides quick and trouble-free reading to the thousandths of an inch. From top: tenth, hundredth and thousandth.
- Riser Blocks for 12" Model
Although the measurable height of the 12" model is limited, it can be extended to a maximum of 36" by using a riser block. The E-type Height Master stands on three carbide pads atop the riser block.
- Dimension: 5.95(W) x 18.5(H) x 5.45(D)
- Each Height Master is supplied with a gage block (.6") for zero setting.
- Certificate of inspection is attached to each Height Master.



515-319

Optional Accessories

050019	Fitted Mahogany Case
515-111	Clamping Block Set for Bore Gages
Riser blocks	(See listing)



Specifications

E-Type Height Master

Inch

Order No.	Range	Graduation	Block Pitch Accuracy	Parallelism of Block	Micrometer Head Accuracy	Weight
515-319	.5–12"	.0001"	±.0001"	.0001"	±.0001"	20.9 lbs.

Height Master

Series 515

18", 24" and 40" Models

Vertical or Horizontal Application

- Block pitch accuracy:
 - ±.00005" for up to 12"
 - ±.0001" for up to 24"
 - ±.00015" for up to 40"
- Parallelism of blocks:
 - .00006" for up to 24"
 - .00008" for up to 40"

Dimensions

- 5.2"(W) x 5.9"(D)

Specifications

Height Master

Inch

Order No.	Range	Graduation	Micrometer Head Accuracy	Height	Weight
515-512	0-18"	.00001"	±.00004"	22.9"	66.0 lbs.
515-510	0-24"	.00001"	±.00004"	28.9"	88.0 lbs.
515-513	0-40"	.00001"	±.00006"	44.9"	127.6 lbs.

515-512 (18")



Optional Accessories

900574	Supporting Base for vertical operation
515-119	Clamping Block kit for Bore Gage
Riser Blocks	(See listing)

Riser Block

Series 515

Features

- Riser Blocks are specially designed and precisely made to maintain the stipulated basic accuracy of both Standard and E-type Height Masters. They are available in two accuracy grades for each height, and, in 6", 12", 24", 150mm and 300mm heights.
- The seasoned, cast-iron Riser Blocks sit on three carbide-faced and lapped pads which assure perpendicularity to the surface plate. The Height Masters, in turn, fit onto three carbide-faced seating pads on the Riser Blocks, and, are accurately positioned by two locating pins.

Dimensions

- 5.9"(W)x5.3"(D) for 6" and 12"
- 9.0"(W)x7.5"(D) for 24"
- Certificate of inspection is attached.

Specifications

Riser Block

Inch

Order No.	Size	Accuracy	Dim W x D	Weight
515-116	6"	±.00002"	5.9" x 5.3"	12.5 lbs
515-117	12"	±.00004"	5.9" x 5.3"	24.9 lbs
515-118	24"	±.00008"	9.0" x 7.5"	68.0 lbs

Metric

Order No.	Size	Accuracy	Dim W x D	Weight
515-113	150mm	±0.0006mm	150mm x 135mm	5.7 kg
515-114	300mm	±0.001mm	150mm x 135mm	11.3 kg



6"

12"

24"

Clamping Block Set for Bore Gage

Features

- For efficient zero-setting of Bore Gages and Inside Micrometers on a Height Master.
- Zero-setting range: .7"–6" (18mm–150mm).



Specifications

Clamping Block Set for Bore Gage

Inch

Order No.	Applicable Height Master	Set Configuration			Ref. Block
		.7–1.4" Block	1.4–6" Block	Clamp Box	
515-119	Height Master (Block Pitch .5")	900439	900440	900385	102394
515-121	Height Master (Block Pitch 1")	900439	900440	900882	102394
515-120	E-type & Digimatic Height Master	900889	900890	900882	102394

Metric

Order No.	Applicable Height Master	Set Configuration			Ref. Block
		18-35mm Block	35-150mm Block	Clamp Box	
515-112	Height Master (Block Pitch 20mm)	900437	900438	900881	102355
515-111	E-type & Digimatic Height Master	900887	900888	900881	102355

Check Masters (Ceramic Block and Steel Block)

Features

- Can be used in either vertical or horizontal orientation.
- Dimensions (W x H) of the measuring face: .35"x.39"/9 x 10mm.
- Indicating the instrumental errors on the plate at intervals of 1"/20mm makes it unnecessary for the user to consult with the certificate of inspection each time an error compensation is performed.

Specifications for CERA Check Master:

- Each measuring block is made of zirconia-based ceramic.
- No anti-corrosion treatment is required for measuring faces.
- Abrasion resistance of the ceramic block is 5 - 10 times that of steel.
- Free from deterioration and dimensional changes over time.

Optional Accessory

Support Base (601167)

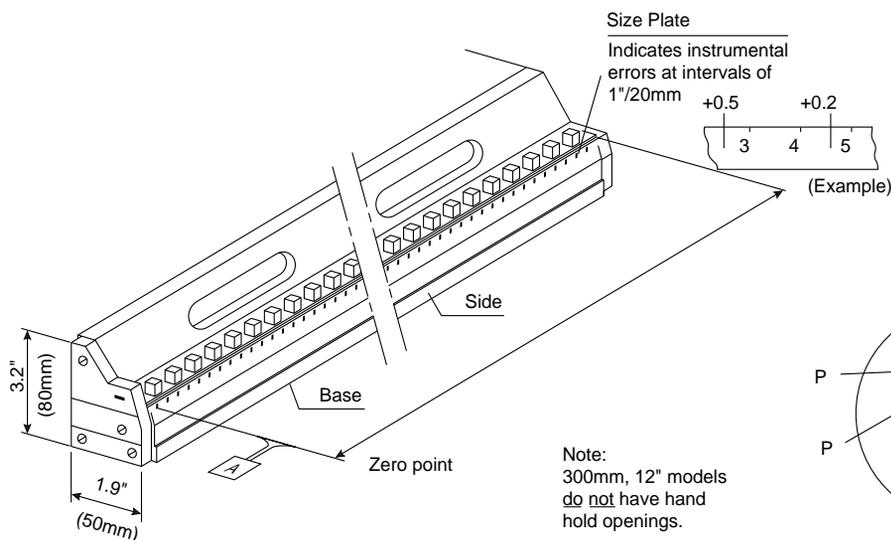
- Provides enhanced stability for vertical orientation.
- Dimensions
14.2"(W) x 8.3"(H) x 8.7"(D)



515-761



Optional
Support
Base
601167



HEIGHT MASTER

Specifications

Check Masters

Ceramic/Inch

Order No.	Range	Pitch		Accuracy of block pitch for the range shown below as measured from the bottom block				Length	Parallelism	Weight
		P	p	up to 12"	12"-24"	24"-40"	40"-60"			
515-750	12"	1"	.5"	±50µin				13.0"	40µin	7.5 lbs.
515-751	18"	1"	.5"	±50µin	±70µin			19.0"	40µin	11.5 lbs.
515-752	24"	1"	.5"	±50µin	±70µin			25.0"	60µin	15.2 lbs.
515-753	40"	1"	.5"	±50µin	±70µin	±100µin		41.0"	60µin	25.4 lbs.
515-754	60"	1"	.5"	±50µin	±70µin	±100µin	±158µin	61.5"	80µin	38.1 lbs.

Ceramic/Metric

Order No.	Range	Pitch		Accuracy of block pitch for the range shown below as measured from the bottom block				Length	Parallelism	Weight
		P	p	up to 300mm	300–600mm	600–1000mm	1000–1500mm			
515-760	300mm	20mm	10mm	±1.2µm				331mm	1µm	3.4 kg
515-761	450mm	20mm	10mm	±1.2µm	±1.8µm			482mm	1µm	5.2 kg
515-762	600mm	20mm	10mm	±1.2µm	±1.8µm			631mm	1.5µm	6.9 kg
515-763	1000mm	20mm	10mm	±1.2µm	±1.8µm	±2.5µm		1037mm	1.5µm	11.5 kg
515-764	1500mm	20mm	10mm	±1.2µm	±1.8µm	±2.5µm	±4.0µm	1546mm	2µm	17.3 kg

Check Masters

Steel/Inch

Order No.	Range	Pitch		Accuracy of block pitch for the range shown below as measured from the bottom block				Length	Parallelism	Weight
		P	p	up to 12"	12"-24"	24"-40"	40"-60"			
515-730	12"	1"	.5"	±50µin				13.0"	40µin	7.9 lbs.
515-731	18"	1"	.5"	±50µin	±70µin			19.0"	40µin	11.9 lbs.
515-732	24"	1"	.5"	±50µin	±70µin			25.0"	60µin	15.9 lbs.
515-733	40"	1"	.5"	±50µin	±70µin	±100µin		41.0"	60µin	26.5 lbs.
515-734	60"	1"	.5"	±50µin	±70µin	±100µin	±158µin	61.5"	80µin	39.7 lbs.

Steel/Metric

Order No.	Range	Pitch		Accuracy of block pitch for the range shown below as measured from the bottom block				Length	Parallelism	Weight
		P	p	up to 300mm	300–600mm	600–1000mm	1000–1500mm			
515-740	300mm	20mm	10mm	±1.2µm				331mm	1µm	3.6 kg
515-741	450mm	20mm	10mm	±1.2µm	±1.8µm			482mm	1µm	5.4 kg
515-742	600mm	20mm	10mm	±1.2µm	±1.8µm			631mm	1.5µm	7.2 kg
515-743	1000mm	20mm	10mm	±1.2µm	±1.8µm	±2.5µm		1037mm	1.5µm	12.0 kg
515-744	1500mm	20mm	10mm	±1.2µm	±1.8µm	±2.5µm	±4.0µm	1546mm	2µm	18.0 kg

Caliper Checker Series 515

The Caliper Checker is designed to calibrate vernier, dial and Digimatic calipers and height gages of various types. It is comprised of permanently wrung, high-grade ceramic (cera) gage blocks in a protective casting. The Caliper Checker also stands perpendicular to a surface for height gage inspection.

Dimensions

14.8"(375mm) W x 2.0(50mm) D x 2.4"(60mm)H



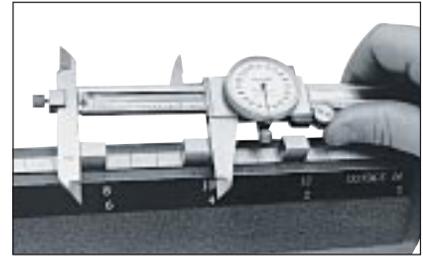
515-565

Length to check

515-565	1",2",4",6",8",10",12"
515-555	20mm, 50mm, 100mm, 150mm, 200mm, 250mm, 300mm

Specifications

Order No.	Range	Accuracy		Weight
		Block pitch	Parallelism	
515-565	12"	±.0002"	80μinch	8.8 lbs.
515-555	300mm	±5μm	2μm	4 kg.



Checking accuracy of Dial Caliper using Caliper Checker.

Depth Micro Checker

- Designed to efficiently check the zero point of a depth micrometer.

Dimensions

2.8"(72mm) W x 2.8"(72mm) D x 7.1" (180mm)H



515-575

Specifications

Order No.	Range	Checking Step	Accuracy	
			Main Body	Anvil Block
515-575	6"	1"	±(40+6.7L)μ inch	±20μ inch

L=Measuring Length

Cera Straight Master



Features

- The Cera Straight Master is for the inspection of straightness of each axis of a Coordinate Measuring Machine (CMM), machine tools, semiconductor related equipment, and form measurement machine.
- This light weight, easy to carry straightness, master is made of alumina ceramics.
- Alumina ceramics has little secular change.
- Supplied with a sturdy wooden case and 3 support legs.

Specifications

Order No.	Range	Overall Length	Size	Straightness	Weight
311-322-33	16"	17.32"		.000012"	3.97 lbs.
311-302-33	400mm	440mm	1.38 x 1.97"	0.0003mm	1.8 kg
311-325-33	28"	28.13"	(35 x 50mm)	.000020"	6.61 lbs.
311-305-33	700mm	740mm		0.0005mm	3 kg
311-327-33	40"	40.94"		.000040"	17.64 lbs.
311-307-33	1000mm	1040mm	1.77 x 3.15"	0.001mm	8 kg
311-329-33	50"	52.76"	(45 x 80mm)	.000060"	22.05 lbs.
311-309-33	1300mm	1340mm		0.0015mm	10 kg

Remark: Over 40" (1000mm) range includes carrying handle.