

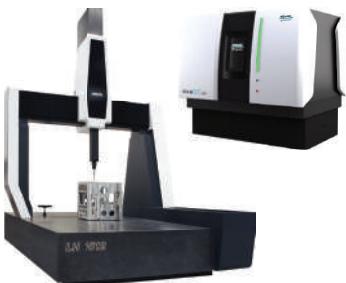


Besmic Optic

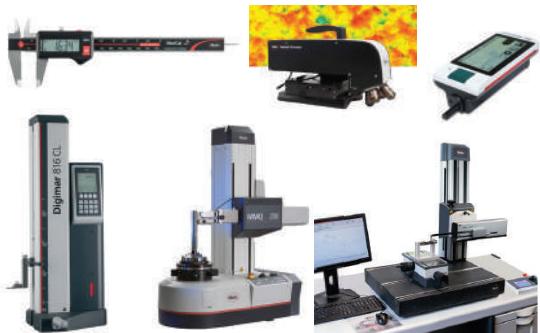
**FARO**



**WENZEL**



**Mahr**



**BESMIC OPTIMOS**



**VOGEL**  
GERMANY



**OPTIMOS SINOWON**



**NACHI**



# INDUSTRIAL METROLOGY MEASURING INSPECTION MACHINE

[www.besmicoptic.com](http://www.besmicoptic.com)

# About Us



**Besmic Optic**  
Industry (M) Sdn Bhd

**Together we serve all your metrology needs**

## Our Product & Service Brand

**BESMIC**  
**OPTIMOS**

**Besmic**  
*Everlite*

**BESCAL**  
CALIBRATION

## Our Partner

**WENZEL**

**FARO**

**Mahr**

**NACHI**

**TRIMOS**

**OPTIMOS**  
**SINOWON**

**JATEN**

**VOGEL**  
GERMANY



**MARK-10**

**KUNOH**  
Technocraft

**LD**

**3AM**  
Advance Adventure Advantage

**ROR**  
RESIDUAL OIL REMOVER

**MIRUC**

**GREEN OPTICS**

Besmic Optic Industry (M) Sdn Bhd. is founded in year 2004, has developed proven reputation throughout the past years. Our Besmic team is like a family, continued work to grow the business and build on our vision to become the Top Metrology Provider.

The mission is to partner a diverse background of Strong brands, Metrology specialist which make you a great benefit from a one stop centre provider for all your metrology needs in Malaysia.

Our consistency of product deliver, repairing and preventive maintenance is our core strength and professionalism of personnel enabled us to meet and customer's satisfaction. Give the best solution for the inspection, practice and proficiency by securing accurate measurements which is essential to quality assurance. Assured your measuring inspection with our latest high precision machines.

We are greatly supplying to vary of industries worldwide such as Automation, Semiconductor, Aerospace, Automotive, Medical and Engineering.

Our support service connect with global professional team to share knowledge and experience, discuss topics of interest and engage online and offline. Besmic Optic Industry training house provide the need for the basic and advanced education.

# Our Services



Sales & Service Centre



Global Expo



Walk-in Showroom



Inspection & Measuring Services



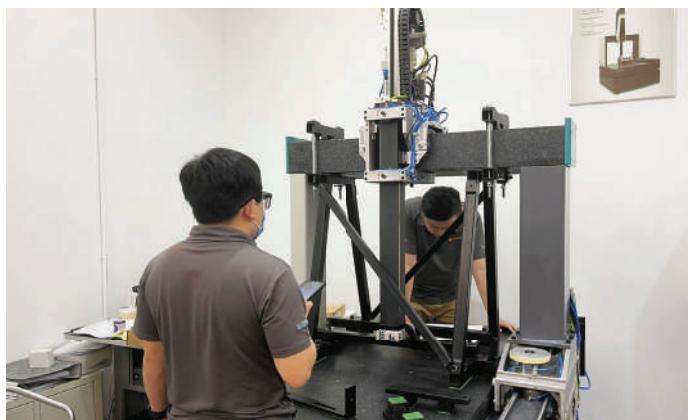
Training & Support



Preventive Maintenance & Repairing Services



Calibration Services @ Customer Site



Allocate & Setup Machines



## 3D Portable Measuring Machines

FARO® is the world's most trusted source for 3D measurement, imaging and realization technology. Enable high-precision 3D measurement and analysis across a variety of industries including manufacturing, construction, engineering and public safety.

### FARO® Quantum S Max Scan Arm



Since 1995, FARO has produced the world's most trusted portable CMM—the FaroArm®. When it comes to performing accurate 3D measurement and inspection on small to medium sized parts, no tool can match the utility, speed and accuracy of the FaroArm.

FaroArm Accuracy - Contact Measurement <sup>1</sup> (FaroArm)					
Quantum Max	S Model				
	6 Axis		7 Axis		
2.0m (6.6ft)	0.024 mm	0.0009 in	0.025 mm	0.0010 in	
2.5m (8.2ft)	0.026 mm	0.0010 in	0.028 mm	0.0011 in	
3.0m (9.8ft)	0.038 mm	0.0015 in	0.05 mm	0.0020 in	
3.5m (11.5ft)	0.052 mm	0.0020 in	0.062 mm	0.0024 in	
4.0m (13.1ft)	0.063 mm	0.0025 in	0.076 mm	0.0030 in	

ScanArm System Accuracy - Non-Contact Measurement <sup>2</sup>						
Quantum Max	S Model					
FAROBlu Max	xR		xP		xS	
2.0m (6.6ft)	0.030 mm	0.0012 in	0.038 mm	0.0015 in	0.046 mm	0.0018 in
2.5m (8.2ft)	0.034 mm	0.0013 in	0.042 mm	0.0017 in	0.050 mm	0.0020 in
3.0m (9.8ft)	0.040 mm	0.0016 in	0.048 mm	0.0019 in	0.055 mm	0.0022 in
3.5m (11.5ft)	0.054 mm	0.0021 in	0.061 mm	0.0024 in	0.068 mm	0.0027 in
4.0m (13.1ft)	0.068 mm	0.0027 in	0.074 mm	0.0029 in	0.080 mm	0.0031 in

### FARO® Tracer<sup>SI</sup> Imaging Laser Projector



#### Performance

Positional Accuracy	0.25 mm @ 5 m (0.010 in @ 16.4 ft)
Range - Projection	1.8 to 15.2 m (6 to 50 ft)

With this FARO-exclusive capability, users can run high-resolution image scans to validate the position, identify the absence/presence of features, and perform Foreign Object Debris (FOD) checks. Users significantly improve productivity by proactively identifying non-conformance to enable real-time corrective measures, eliminating costly scrap and rework.

### Gage Max FaroArm®

Maximize value and Productivity by over 30%



#### FaroArm Accuracy - Contact Measurement<sup>1</sup> (Gage Max FaroArm)

Performance Specifications*		Hardware Specifications*	
SPAT <sup>1</sup>	0.012 mm (0.0005 in)	Working Volume	1.5 m (4.9 ft)
EUNI <sup>2</sup>	0.022 mm (0.0009 in)	Weight	8.2 kg (18.0 lbs)
PSIZE <sup>3</sup>	0.007 mm (0.0003 in)	Operating Temp Range	10°C - 40°C (50°F - 104°F)
PFORM <sup>4</sup>	0.012 mm (0.0005 in)	Power Supply	100-240 VAC; 47/63 Hz
LDIA <sup>5</sup>	0.024 mm (0.0009 in)	Operating Humidity Range	10%-95%, non-condensing

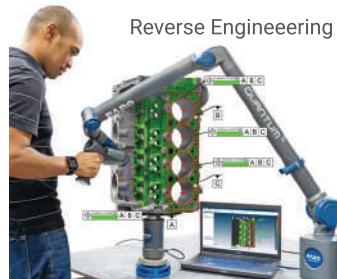
### FARO® Vantage<sup>S</sup> Laser Tracker with Super 6DoF Probe



FARO® Vantage Laser Trackers enable you to build and inspect products by measuring quickly, simply and precisely with exceptional portability. The Vantage platform offers comprehensive, large-volume 3D measurement up to 80 meters, significantly streamlining your processes and reducing inspection cycle times while giving complete confidence in your measurement results.

Working Range	Vantage <sup>S</sup>	Vantage <sup>E</sup>
Maximum with FARO 1.5in green-ring or 1.5in blue-ring SMRs	80m (262.5ft)	35m (114.8ft)
Maximum with 1.5in & 7/8in SMRs	60m (196.9ft)	35m (114.8ft)
Maximum with 1/2in SMRs	30m (98.4ft)	30m (98.4ft)
Minimum	0m (0ft)	0m (0ft)

### Application



# Coordinate Measuring Machines

High quality performance CNC bridge, manual bridge, gantry, travelling bridge and horizontal CMM's. Innovative sensor technology ensures precise detection of free-form surfaces and geometric elements.

**WENZEL®**  
Product of Germany

## WENZEL® XO series Bridge CMM

The XOrbit coordinate measuring machine offers an excellent price-performance ratio and can be equipped with multiple changeable measuring sensors. Simple measurement - simply good.



## WENZEL® LH series Bridge CMM

The LH series is used in almost all areas of industry and measures components in detail from watch manufacture through to the production of large engines.



## WENZEL® LHF series Ground level CMM

It is used by innovative medium-sized companies as well as world-famous large corporations - or simply everywhere where high measuring requirements define the requirement.



WENZEL LH coordinate measuring machines are available for different accuracy requirements in three accuracy classes: **Standard | Premium | Premium Select**

Model	XO 55	LH 65	XO 87	LH 87	XO 107	LH 108	LH 1210	LH 1512	LH 2015
Accuracy (µm)	<1	PS* 0.8+L/450		PS* 0.8+L/450					
	1	P* 1.0+L/400	S* 1.2+L/350	P* 1.0+L/400	S* 1.2+L/350	PS* 1.0+L/450	P* 1.2+L/400	S* 1.4+L/350	
	2	P* 1.5+L/350		P* 1.6+L/350		P* 1.8+L/350	PS* 1.6+L/450	P* 1.8+L/400	PS* 1.9+L/450
	3	S* 2.0+L/300		S* 2.2+L/300		S* 2.6+L/300	S* 2.0+L/350	P* 2.1+L/400	S* 2.3+L/350
									PS* 2.6+L/450
									P* 2.8+L/350
									S* 3.1+L/300

### Measuring Volume

Material	Specific Weight (Kg/Dm <sup>3</sup> )	Expansion Coefficient (1/K)	Temperature Diffusiorate (W/Mk)	Elasticity Module (10 <sup>9</sup> N/Mm <sup>2</sup> )
Steel	7.25	10.4*10 <sup>-6</sup>	42-63	90-180
Aluminium	2.7	23.8*10 <sup>-6</sup>	210	72
Ceramic (Al203)	3.85	8*10 <sup>-6</sup>	28	370
<b>Granite</b>	<b>2.8</b>	<b>6.5*10<sup>-6</sup></b>	<b>3.5</b>	<b>NIL</b>

WENZEL offers well-engineered coordinate measuring machines (CMMs) which have proven themselves many times in the market. In this brochure we present the XO and LH series of CMMs. The LH series bridge CMMs have air bearing guide elements in all axes which ensure wear free and smooth operation. The LH base plates as well as traverses and quills are **made of granite**. Granite's physical properties make it the perfect material for measuring instruments. The LH series distinguishes itself by its high accuracy and high measuring speeds.

## WENZEL® CORE series Optical Measurement

CORE D is a 5-axis, optical CMM system which is ideal for measurement of small to medium turbine blades, medical implants or any other parts with similar characteristics of polished, reflective surfaces and sharp edges. The characteristics above are measured with a unique, "Double-eye" sensor which ensures good point accessibility and even collects reliable data with the axis of the light beam up to 85° to the surface normal.



## WENZEL® GT series Top Class Gear Metrology

The GT series offers the right solution for your measuring task: for small gears and rotationally symmetrical components, e.g. from the automotive industry, through toothed workpieces and shafts used, for example, in commercial vehicles, railroad transmissions or construction and agricultural machinery, to the measurement of marine gears.



## WENZEL® exaCT Scan series Computed Tomography

The exaCT U is universally applicable and can also scan large components with higher densities due to its high measuring volume. It is ideally suited for measuring and testing parts made of plastic, light metal, composite materials or multi-materials.



### exaCT U 225

Space Requirements (LxBxH)	1960 x 2350 x 2400 mm
X-Ray (Voltage, Power)	225 kV, 300 W
Detector Resolution	2900 x 2900 Pixel, 150 µm
Work Piece Dimensions	Ø 330 x 700 mm*



**Besmic Optic Industry (M) Sdn Bhd**

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## Optical Profile Projector

Hi-tech manufacturer of metrology instrument, specialized in profile projector image measuring instrument, CNC glue dispenser, electronic product despinsing machines, multi-axis dispensing machine.

### Jaten OPJT-VMS | Manual Vision Measuring Machine



Model (Optical Sensor)	OPJT-VMS 1510	OPJT-VMS 2010	OPJT-VMS 2515	OPJT-VMS 3020	OPJT-VMS 4030
Model (Touch Probe)*	OPJT-VMS 1510-T	OPJT-VMS 2010-T	OPJT-VMS 2515-T	OPJT-VMS 3020-T	OPJT-VMS 4030-T
Stage Travel: XYZ (mm)	150x100x200	200x150x200	250x150x200	300x200x200	400x300x300
Accuracy	X/Y axis: $\leq 3+L/200(\mu\text{m})$ , Repeatability $2\mu\text{m}$				
	Z axis: $\leq 4+L/200(\mu\text{m})$				

### Jaten OPJT-QA series | CNC Universal Vision Measuring Machine



Model (Optical Sensor)	OPJT-QA 3020 CNC	OPJT-QA 4030 CNC	OPJT-QA 5040 CNC
Model (Touch Probe)*	OPJT-QA 3020 CNC-T	OPJT-QA 4030 CNC-T	OPJT-QA 5040 CNC-T
Model (Laser Probe)**	OPJT-QA 3020 CNC-L	OPJT-QA 4030 CNC-L	OPJT-QA 5040 CNC-L
Stage Travel: XYZ (mm)	300x200x200	400x300x200	500x400x200
Accuracy	X/Y axis: $\leq 3+L/200(\mu\text{m})$		
	Z axis: $\leq 4+L/200(\mu\text{m})$		

### Jaten OPJT-QVS series | CNC Fully Auto Bridge Vision Measuring Machine



Model (Optical Sensor)	OPJT-QVS 3020 CNC	OPJT-QVS 4030 CNC	OPJT-QVS 5040 CNC	OPJT-QVS 6050 CNC
Model (Touch Probe)*	OPJT-QVS 3020 CNC-T	OPJT-QVS 4030 CNC-T	OPJT-QVS 5040 CNC-T	OPJT-QVS 6050 CNC-T
Model (Laser Probe)**	OPJT-QVS 3020 CNC-L	OPJT-QVS 4030 CNC-L	OPJT-QVS 5040 CNC-L	OPJT-QVS 6050 CNC-L
Stage Travel: XYZ (mm)	300 x 200 x 200	400 x 300 x 200	500 x 400 x 200	600 x 500 x 200
Accuracy	X/Y axis: $\leq (3+L/200)\mu\text{m}$			Z axis: $\leq (4+L/200)\mu\text{m}$

### Horizontal Bench Top Video Profile Projector



Model	OPJT-HTV-3015
Travel-Axis (X x Y x Z)	300 x 150 x 150 mm
Accuracy	$\leq (3+L/200)\mu\text{m}$
Repeatability	$\pm 2 \mu\text{m}$
Metal Table Size	455 x 126

### Vertical Bench Top Video Profile Projector



Model	OPJT-VTC-2515	OPJT-VTC-3020
Travel-Axis (X x Y x Z)	250 x 150 x 200 mm	300 x 200 x 200 mm
Metal Stage	450 x 280 mm	510 x 290 mm
Accuracy	$\leq (3+L/200)\mu\text{m}$	
Repeatability	$\pm 2\mu\text{m}$	

### Horizontal Bench Top Profile Projector



Reverse Image	OPJT-HB12-2010	OPJT-HB16-3015
Observe Image	OPJT-HB12-2010Z	OPJT-HB16-3015Z
Metal Stage Size (mm)	408 x 126	408 x 126
Stage Travel: XY axis (mm)	200 x 100	300 x 150
Stage Travel: Z axis (mm)	100 (for focusing)	125 (for focusing)
X and Z Linear Resolution	0.0005mm	
Sway Range	$\pm 15^\circ$	
Accuracy	$\leq 3+L/200(\mu\text{m})$	

### Vertical Bench Top Profile Projector



Reverse Image	OPJT-JT-3015	OPJT-JT-3020
Observe Image	OPJT-JT-3015Z	OPJT-JT-3020Z
Metal Stage Size (mm)	340 x 152	350 x 170
Glass Stage Size (mm)	196 x 96	246 x 120
Stage Travel: XY axis (mm)	150 x 50	200 x 100
Stage Travel: Z axis (mm)	100mm (for focusing)	
X and Z Linear Resolution	0.0005mm	
Accuracy	$\leq 3+L/200(\mu\text{m})$	

## Video Measuring Machine

Sinowon Innovation Metrology Manufacture, is popular with video measuring machine. All of our products are ISO:9001 & CE EU certification accredited, widely applies in machinery, mold, metal, rubber, printed circuit boards, medical equipment & etc.

**OPTIMOS**  
**SINOWON**  
Product of China

Table Top VMM OP-iMS Series

Model 2.5D iVision (Zoom Lens)	OP-IMS-2010	OP-iMS-2515	OP-iMS-3020	OP-IMS-4030	OP-iMS-5040
Model 2.5D iFocus (Auto Focus) <sup>1)</sup>	OP-IMS-2010-F	OP-iMS-2515-F	OP-iMS-3020-F	OP-IMS-4030-F	OP-iMS-5040-F
Model 3D iTouch (Touch Probe) <sup>2)</sup>	OP-iMS-2010-T	OP-iMS-2515-T	OP-iMS-3020-T	OP-iMS-4030-T	OP-iMS-5040-T
X/Y-axis Travel (mm)	200 x 100	250 x 150	300 x 200	400 x 300	500 x 400
Z-axis Travel			High-precision linear guide, working travel 200mm		
Measurement Accuracy*			X/Y-axis: $\leq 2.5+L/200(\mu\text{m})$		
			Z-axis: $\leq 4+L/200(\mu\text{m})$		



Cantilever Auto VMM OP-MVS Series

Optical Zoom Lens	OP-MVS-322A	OP-MVS-432A	OP-MVS-542A
Zoom Lens, 3D Probe System <sup>1)</sup>	OP-MVS-322B	OP-MVS-432B	OP-MVS-542B
Zoom Lens, 2.5D Laser System <sup>2)</sup>	OP-MVS-322C	OP-MVS-432C	OP-MVS-542C
Zoom Lens, 3D Probe, Laser System <sup>1)2)</sup>	OP-MVS-322D	OP-MVS-432D	OP-MVS-542D
X/Y-axis Travel (mm)	300x200	400 x 300	500 x 400
Z-axis Travel		High precision linear guide, working travel 200mm	
Z-axis Auto Focus Sensors		High - precision automatic focusing function module to achieve accurate focus.	
Measurement Accuracy*		XY-axis: $\leq 2.2+L/200\mu\text{m}$	
		Z-axis: $\leq 4+L/200\mu\text{m}$	



Gantry Auto VMM OP-Auto Series

2.5D Optical Zoom Lens	OP-AutoVision 432	OP-AutoVision 542	OP-AutoVision 652	OP-AutoVision 862
Zoom Lens, 3D Probe System <sup>1)</sup>	OP-AutoTouch 432	OP-AutoTouch 542	OP-AutoTouch 652	OP-AutoTouch 862
Zoom Lens, 2.5D Laser System <sup>2)</sup>	OP-AutoScan 432	OP-AutoScan 542	OP-AutoScan 652	OP-AutoScan 862
Zoom Lens, 3D Probe, Laser System <sup>1)2)</sup>	OP-Auto ScanTouch 432	OP-Auto ScanTouch 542	OP-Auto ScanTouch 652	OP-Auto ScanTouch 862
X/Y-axis Travel (mm)	400x300	500x400	600 x 500	800 x 600
Z-axis Travel		High precision linear guide, working travel 200mm		
Z-axis Auto Focus Sensors		High - precision automatic focusing function module to achieve accurate focus.		
Measurement Accuracy*		XY-axis: $\leq 1.8+L/200\mu\text{m}$		
		Z-axis: $\leq 4+L/200\mu\text{m}$		



## Digital Vertical Profile Projector OP-VP400-2010

Reverse Image	OP-VP400-2010	OP-VP400-2515	OP-VP400-3020
Observe Image	OP-VP400-2010Z	OP-VP400-2515Z	OP-VP400-3020Z
Metal Stage Size	308x408mm	308x408mm	458x358mm
Glass Stage Size	198x306mm	198x306mm	356x248mm
Stage Travel	200x100mm	250x150mm	300x200mm
Focusing	100mm		
Accuracy	$\leq 3+L/200(\mu\text{m})$		
Resolution	0.0005mm		
Loading Weight	10Kg		
Screen	Dia: 412mm, Measurement Range $\leq \varnothing 400$		
	Rotation Angle 0~360°; Resolution: 1' or 0.01° accuracy 6'		

## Digital Horizontal Profile Projector OP-PH400-3015

Model	OP-PH400-3015
Stage Size	455x126mm
Stage Travel	300x150mm
Focusing	120mm
Accuracy	$\leq 3+L/200(\mu\text{m})$
Resolution	0.0005mm
Loading Weight	15Kg
Screen	Dia:412mm, Measurement Range $\geq \varnothing 400$ Rotation Angle 0~360°; Resolution: 1' or 0.01° accuracy 6'



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**Product of Germany**

## Instrument Made for Precise Shaft Measurement Technology

Dr. Heinrich Schneider Messtechnik GmbH, a leading provider of high-precision optical and multi-sensor measurement technology. The pioneering turning point came in 1973: We are the world's first company to equip optical equipment with electronics.

### V-CAD series - 2D Optical Measurement Devices

Measurements don't get much quicker or simpler than this. Choose the single image field system of the V-CAD 60 this covers a measuring range of up to 65 x 55 mm, without table movement), or the larger variant with moving table (V-CAD 300 and measuring volume of up to 300 x 200 mm that can alternatively also be used in fully automated CNC mode.



Model		V-CAD 60
Measurement Software		SAPHIR / M3
Measuring Range	mm	65.5 x 55
Object height in Z	mm	50
Lens		Telecentric special lens
Image field	mm	65 x 55
Motorised zoom		4-stage motor zoom, telecentric
Image field	mm	65.5 x 55, 32.5 x 27.5, 16 x 13.5, 8 x 6.5
Optical (2D), DIN EN ISO 10360-7		EUV, MPE = (3.5 + L/50) $\mu$ m

### WMM series - 3D Multi Sensor Shaft

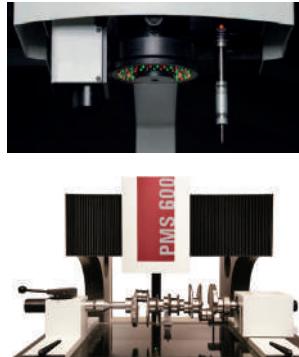
Whatever industry you are in or catering to, whether it's the automotive or aviation arena, the tools or turbines trade, the gearbox manufacturing domain, the medical engineering or calibration laboratories business: Nothing goes without meticulous measurement of shafts, precision-turned parts or rotationally symmetric objects! The 3D multisensor measuring machines of Schneider's WMM series will help you steer a safe course in all conditions and environments.



Model	VMM 300	WMM 450	VMM 600
Measurement range			
Length	mm	300	450
Diameter	mm	80	150
Field of view			
Measurement probe (optional)		TP200 (fixed installation)	TP200 or SP25 (feed axis)
Resolution	mm	0.0001	
Motorised axis adjustment		4 axes	
Length measurement error <sup>1)</sup>		Measurement length L in mm	
Optical (1D), DIN EN ISO 10360-7 <sup>2)</sup>		EUY, MPE = (1.0 + L/100 mm) $\mu$ m	
Optical (2D), DIN EN ISO 10360-7 <sup>3)</sup>		EUXY, MPE = (2.0 + L/200 mm) $\mu$ m	
Tactile (1D), DIN EN ISO 10360-2 <sup>4)</sup>		EOXY, MPE = (2.0 + L/200 mm) $\mu$ m	

### PMS Series - 3D Multisensor portal measurement machines

On PMS 400-700 series machines, the base frames including the measurement tables are made completely of granite. This guarantees the highest level of stability and reproducible measurement results.



Model	PMS 400	PMS 500	PMS 600	PMS 700
Other measurement ranges available upon request				
Measurement Range	mm	X 400	X 500	X 600
	mm	Y 400	Y 500	Y 600
	mm	Z 300	Z 300	Z 300
Lens zoom		Telecentric		
Magnification		0.5x - 7.0x		
Length measurement error <sup>1)</sup>		Measuring length L in mm		
Optical (1D), DIN EN ISO 10360-7		EUX, MPE = (1.3 + L/300 mm) $\mu$ m <sup>2)</sup> EUY, MPE = (1.3 + L/300 mm) $\mu$ m <sup>2)</sup>		
Optical (2D), DIN EN ISO 10360-7		EUXY, MPE = (2.0 + L/300 mm) $\mu$ m <sup>2)</sup>		
Tactile (1D), DIN EN ISO 10360-2 <sup>4)</sup>		EOX, MPE EOY, MPE = (1.3 + L/300 mm) $\mu$ m		
Tactile (2D), DIN EN ISO 10360-2 <sup>4)</sup>		EOXY, MPE = (2.0 + L/300 mm) $\mu$ m		
Tactile (3D), DIN EN ISO 10360-2 <sup>4)</sup>		EO, MPE = (2.8 + L/300 mm) $\mu$ m		

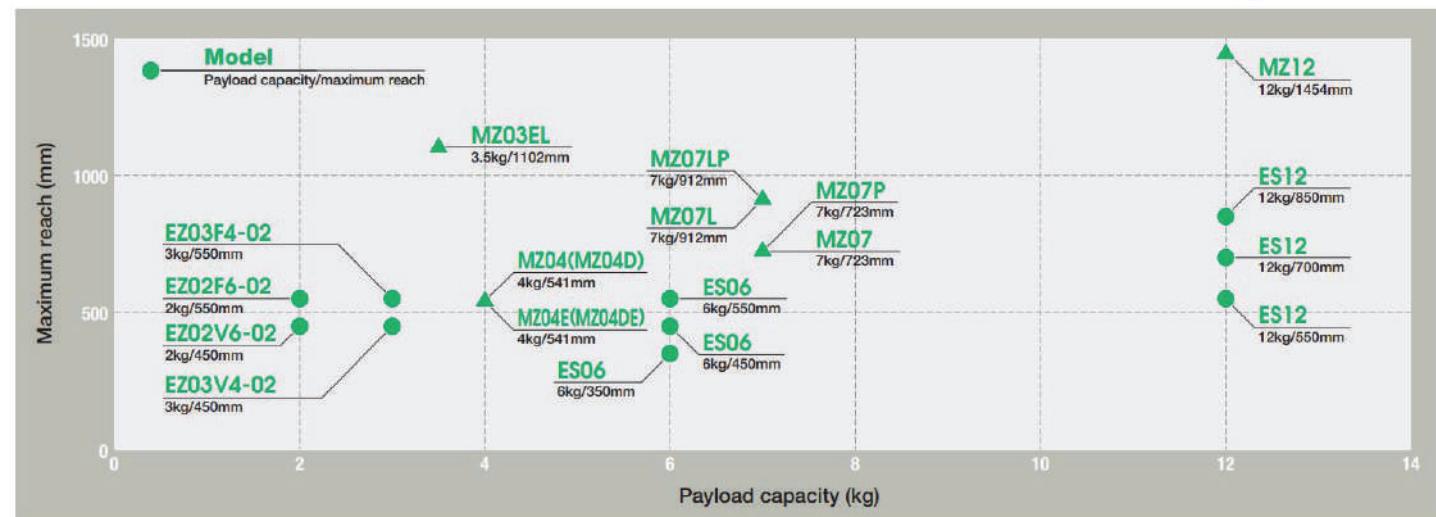
# Industrial Robot

NACHI-FUJIKOSHI leveraged know-how from their hydraulic and machine tool divisions to become the first Japanese manufacturer of industrial robots in 1968. NACHI's full robot series lineup supports worksites throughout the world of manufacturing.

**NACHI**  
Product of Japan

## MZ Series - Handling (Machine loading, picking, loading, palletizing, assembling, deburring/polishing, and sealing.)

The MZ series is the world's fastest lightweight compact robots. This high speed and precise robot was designed with advanced CAD tools for a very light-weight, but strong, rigid structure, which helps improve cycle time by 12%. Solving your automation needs for assembly, loading, and other jobs with a lineup of high performance and highly functional product applications such as vision sensors and our FLEXhand series for our high-speed and high precision robots.



Process and application	HANDLING					PALLETIZING		CLEAN-ROOM		WELDING		Field
	MZ	EZ/ES	MC/MR	ST-TP	MC and SC Heavy Loader	LP/MC470P/MC500P	ST-C/SC-C	SJ	SRA-H/SRA	NB/NV		
Process and application	▶P.05 Number of controlled axes: 5 or 6 axes Payload capacity: 3.5 to 10kg Maximum reach: 541 to 1,454mm	▶P.06 Number of controlled axes: 4 or 6 axes Payload capacity: 2 to 10kg Maximum reach: 350 to 650mm	▶P.07 Number of controlled axes: 6 or 7 axes Payload capacity: 10 to 70kg Maximum reach: 1,260 to 2,150mm	▶P.08 Number of controlled axes: 6 or 7 axes Payload capacity: 80 to 100kg Maximum reach: 2,019mm	▶P.09 - P.10 Number of controlled axes: 6 axes Payload capacity: 280 to 1,000kg Maximum reach: 2,771 to 3,716mm	▶P.11 Number of controlled axes: 4 or 5 axes Payload capacity: 130 to 500kg Maximum reach: 2,771 to 3,716mm	▶P.12 Number of controlled axes: 6 axes Payload capacity: 133 to 40kg Maximum reach: 2,694 to 3,029mm	▶P.12 Number of controlled axes: 6 axes Payload capacity: 25 to 120kg Maximum reach: 2,771 to 3,716mm	▶P.13 - P.14 Number of controlled axes: 6 axes Payload capacity: 160 to 250kg Maximum reach: 1,034 to 2,700mm	▶P.15 Number of controlled axes: 6 axes Payload capacity: 4 to 8kg Maximum reach: 1,462 to 2,600mm		
Spot and seam welding					●				●			Automotive, automotive parts, metalworking, agricultural machinery, construction machinery
Arc welding				●							●	
Die casting	●			●					●			Automotive parts, plastic, electric and electronics
Resin molding	●	●	●	●	●				●			
Press operation handling	●		●	●	●				●			
Machine loading	●		●	●	●			●	●			
Deburring and polishing	●	●	●	●					●			
Sealing	●	●	●									
General assembling	●	●	●						●			
Tightening nuts	●	●	●						●			
Picking, aligning, packaging	●	●	●									
Shipping and receiving (palletizing)		●	●	●		●		●		●		
Measuring, inspection, testing	●	●	●			●						
Material handling	●	●	●	●	●	●	●	●	●			
Glass substrate loading							●	●	●			Electronics



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## Manufacturer of Innovative Metrology

Whether tactile or optical - Mahr has been an expert in dimensional metrology and surface measurement for over 160 years. We provide this expertise and know-how from countless projects to our customers in order to achieve great things together.

### MarCal 16 EWRI | Caliper



### MarCal 16 ER | Caliper



### Micromar 40 EWRI | Micrometer



Order No.	Type	Measuring range	Measuring range inch	Numerical increment	Error limit	Error limit inches (text)	Standard	Depth rod	Friction Wheel
		mm	inch	mm / inch	mm	inch			
4103013	16 ER	0 - 150	0 - 6"	0.01 / .0005"	0.03	.001"	DIN 862	rectangular	*
4103206	16 ER	0 - 200	0 - 8"	0.01 / .0005"	0.03	.001"	DIN 862	rectangular	*
4103208	16 ER	0 - 300	0 - 12"	0.01 / .0005"	0.04	.0015"	Factory Standard		*
4103403	16 EWRI	0 - 150	0 - 6"	0.01 / .0005"	0.03	.001"	DIN 862	rectangular	*
4103405	16 EWRI	0 - 200	0 - 8"	0.01 / .0005"	0.03	.001"	DIN 862	rectangular	*
4103407	16 EWRI	0 - 300	0 - 12"	0.01 / .0005"	0.04	.0015"	Factory Standard		*

Order No.	Type	Measuring range	Measuring range inch	Numerical increment	Error limit	Parallelism deviation	Flatness deviation	Spindle thread pitch	Measuring force	Standard
		mm	inch	mm / inch	µm	µm	µm	µm	N	
4157010	40ER	0 - 25	0 - 1"	0.001 / .00005"	2	2	0.6	0.5	5-10	Factory Standard
4157100	40 EWRI	0 - 25	0 - 1"	0.001 / .00005"	2	2	0.6	0.5	5-10	Factory Standard
4157101	40 EWRI	25 - 50	1 - 2"	0.001 / .00005"	2	2	0.6	0.5	5-10	Factory Standard

### Micromar 40 ER | Micrometer



With Integrated Wireless, your data will be transferred to the digital indicator, which is confirmed with a message in the digital indicator's display. The message will show whether the sent data has been transferred correctly, and/or whether you are in the reception range of the i-Stick.

### Digimar | Height Measuring Instruments



Order No.	4429030	4429031
Product type	816 CL	
Measuring Range	mm	0 - 350    0 - 600
Measuring range	inch	0 - 14"    0 - 24"
Application range from	mm    170	
Application range up to	mm	520    770
Resolution	mm	0.01, 0.001
Resolution	inch	.00005", .0001"
Error limit	µm	(2.8+L/300) L in mm
Measuring force	N	1.0 +/- 0.2 N
Data interface	Opto RS232C, USB, Wireless	



**MarTest**  
Test Indicators and Touch Probes



**MarCator**  
Dial and Digital Indicators



**Multimar**  
Universal Measuring Instruments



**Millimess**  
Digital and Dial Comparator



**Millimar**  
Electrical and Pneumatic Length Measuring Instruments



**Precimar**  
Gage Block & Dial Gage Testing Unit



**MarShaft**  
Optical & Tactile Shaft Measuring Units



**MarGear**  
Gear Measuring Instruments

# Modern Metrology for Every Measuring Task

As your global partner for quality assurance, we offer you products and solutions that combine proven precision with high efficiency. Short measuring times and high usability speed up your workflows.



## MarSurf PS 10 | Mobile Roughness Measuring Instrument



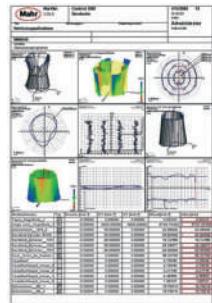
- “SMAHRT Surf” – simple, smart and mobile
- Compact roughness measuring instrument for mobile use
- Simple and intuitive to use: as easy as using a smart phone
- Large, illuminated 4.3" TFT touch display

### Applications:

- For shafts and housing components
- For large machines
- For large workpieces
- For milled and turned parts

Order No.	6910230	6910232
Product type	PS 10	
Parameters	Ra, Rq, Rz (Ry (JIS) is equivalent to Rz), Rz (JIS), Rmax, Rp, RpA (ASME), Rpm (ASME), Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, Vo, Rt, RPe, Rmr (tp (JIS, ASME) is equivalent to Rmr), RSm, RSk, RS, CR, CF, CL, R, Ar, Rx, R3z	
Stylus	2 µm	5 µm
Calibration function	Dynamic; Ra, Rz, Rsm	
Storage capacity	Min. 3900 profiles, min. 500.000 results, min. 1500 PDF records, expandable to 32 GB with Micro SD card	
H x W x D	mm	160 mm x 77 mm x 50 mm
Probe	Inductive skidded probe	
Measuring range	mm	0.350
Profile resolution	8 nm	
Measuring force	N	0.00075

## MarForm MMQ 200 | Compact Form Measuring Machine



### Form measuring station with T20W

- MarForm MMQ 200 form tester
- T20W length measuring probe, manual, with probe arm
- EasyForm measuring and operating software
- Intel-class PC, Windows 10
- 24" TFT monitor
- Rim chuck Ø 100 mm

### Form measuring station with T7W

- MarForm MMQ 200 form tester
- T7W length measuring probe with probe arm
- EasyForm measuring and operating software
- Intel-class PC, Windows 10
- 24" TFT monitor
- Rim chuck Ø 100 mm

Formtester	MMQ 200
<b>Roundness measuring unit, C-axis</b>	
Roundness deviation (µm+µm/mm measuring height) **	0.03 + 0.0006
Roundness deviation (µm+µm/mm measuring height) *	0.015 + 0.0003
Axial runout deviation (µm+µm/mm measuring radius) **	0.04 + 0.0006
Axial runout deviation (µm+µm/mm measuring radius) **	0.02 + 0.0001

## MarSurf XC 2 with CD 120 | Contour Measuring Station



Your entry into precision contour measurement. The quick, simple and inexpensive 2D contour measuring system satisfies all demands in terms of accuracy and range of evaluation Criteria. Consistently delivers safe and reliable results.

Applications:  
Bearings, threads, threaded rods, ball screws, shafts, racks. Contour measurement for dental implants.

XC 2	
Measuring range	(in Z) 50 mm
Traversing lengths	0.2 mm to 120 mm
Measuring force	1 mN to 120 mN
Sampling angle	On smooth surfaces, depending on deflection: trailing edges up to 88°, leading edges up to 77°
Contacting speed (in Z)	0.1 to 1 mm/s
Resolution	In Z, relative to stylus tip: 0.38 µm (350 mm probe arm) / 0.19 µm (175 mm probe arm) In Z, relative to measuring system: 0.04 µm
Guide deviation	< 1 µm (over 120 mm)
Measuring speed	0.2 mm/s to 4 mm/s
Positioning speed	In X and return speed: 0.2 to 8 mm/s In Z: 0.2 to 10 mm/s
Probe arm length	175 mm, 350 mm
Tip radius	25 µm

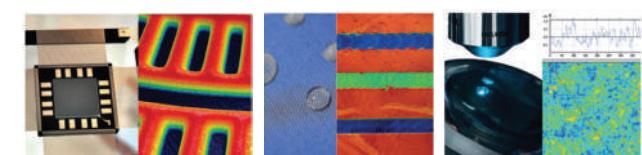
## MarSurf CM mobile | 3D Surface Measurement



The new generation of the MarSurf CM mobile combines all its previously available unique features with the established HDR functionality of the stationary systems. The portable MarSurf CM mobile was developed in particular for measurements on large objects and samples that are difficult to move, e.g., rolls and vehicle bodies.

- Mobile application - measurement directly on the component
- Compact system (8 kg) with motorized axes
- Robust and reliable for use in production
- High measuring speed – even at full resolution
- User-friendly concept
- HD stitching - Consistently high resolution even with large measurement areas

CM mobile	
Measuring principle	Patented CMP technology (Confocal Multi Pinhole)
Light source	High performance LED (505/475 nm), MTBF: 50,000 hours (color camera with high performance hite light LED)
Typical measuring Time (s)	2-8



- MEMS
- LED
- High performance electronics
- BGA
- Micro-optics
- Printing cylinder
- Printing plates
- Paper sieves
- Bank notes
- Works of art
- Chip cards
- Lenses
- Plane optics
- Freeform
- Aspheres
- Laser and x-ray mirrors



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## Global Leading Height Measuring Gauge

For over 40 years, Trimos offers height gauges, horizontal measuring instruments & surface analysis instruments. "Swiss Made" manufacturing quality level. They are internationally recognized for their excellence, combine high precision & innovation.

### Trimos Height Gauge



Specifications	V5			V6			
	400	700	1100	400	700	1100	
Measuring range	mm (in)	407 (16)	711 (28)	1110 (44)	407 (16)	711 (28)	
Measuring range with extension	mm (in)	719 (28)	1023 (40)	1422 (56)	719 (28)	1023 (40)	
Max. permissible errors, $B_{MPE}$	$\mu\text{m}$	2.5 + L (mm) / 300			2 + L (mm) / 400		
Repeatability, $R_{MPE}$ (2s)	$\mu\text{m}$	2			1 ( $\varnothing$ :2)		
Frontal squareness deviation, $S_{MPE}$	$\mu\text{m}$	5	8	11	5	8	11
Maximal Resolution	mm (in)	0.001(0.00005)			0.001(0.00005)		
Measuring force	N	0.75÷1.5			0.75÷1.5		
Autonomy	h	12			12		
Interfaces		USB / RS232			USB / RS232		
Air Cushion		Yes			Yes		
Weight	kg	21	24	33	21	24	33

A height gauge is a dimensional measuring instrument with a single vertical axis used on a granite table. It is used universally for the measurement of mechanical parts. Its preferred location is the workshop, close to the machining center, or the measuring room. It provides accurate, fast and easy measurement of parts in production, directly by the operator. The measurement of distances, diameters and center distances are the basic functions of a height gauge. The most sophisticated models (2D) offer advanced functionalities such as 2-dimensional measurement, statistics or programming, but also measurement of perpendicularity, angle, flatness and temperature compensation.

## Precision Measuring Tools and Test Instruments

Vogel Germany, Manufacturers of Precision Measuring Tools, based in Kevelaer since 1949, has a long history and offers a wide range of highly interesting product innovations to its market partners in more than 80 countries.

### Precision Small Tools



#### Angle Measurer Spirit Levels • Spirit Levels • Angle Finders...

Digital Angle Measurer Spirit Levels • Angle Measurer Spirit Levels • Digital Light Alloy Spirit Levels  
Light Alloy Spirit Levels...

#### Measuring Stands • Measuring Stand Columns • Measuring Tables...

Magnetic Measuring Stands • Measuring Stand Columns • Measuring Stand Magnetic Bases  
Measuring Tables • Measuring and Control Plates • Precision Gauge Blocks • Angle Plates • Straight Edges Triangular Straight Edges • Edge Finders • 3D Edge Finders • Digital Tachometers • Parallel Supports Digital Force Gauges • Scales • Test Weights • Zero-Setting Devices...

#### Precision Rules • Circumferences • Straight Edges...

Flexible Rules • Rigid Rules • Precision Rules • Rules in Special Design • Circumferences Precision Marking Rules • Precision Straight Edges • Straight Edges • Digital Measuring Wheels Digital Scales • Laser Distance Measurers • Telescopic Tower Tapes • Wood Folding Rules Pocket Measuring Tapes • Digital Measuring Tapes • Measuring Tapes...

#### Digital Calipers • Pocket Vernier Calipers • Special Calipers...

Digital Calipers • Special Digital Calipers • Precision Pocket Vernier Calipers  
Precision Dial Calipers • Precision Digital Workshop Calipers Workshop Calipers • Universal Calipers • Groove Calipers • Button Gauges Digital Brake Disc Calipers • Brake Drum Calipers • Digital Depth Calipers...

#### Digital External Micrometers • Precision Internal Micrometers...

Precision Digital External Micrometers • Precision Digital External Micrometers, Special Design Indicator Snap Micrometers • Snap Gauges • External Micrometers • External Micrometer Sets Precision Special External Micrometers • Precision Digital Inside Micrometers • Inside Micrometers Digital Depth Micrometers • 3-Point Digital Bore Micrometers • Bore Gauge Sets...

#### Precision Dial Indicators • Digital Dial Test Indicators...

Precision Digital Dial Indicators • „Absolute“ Digital Dial Indicators • Small Dial Indicators • Precision Dial Indicators Digital Test Indicators • Thickness Dial Gauges • Precision Thickness Dial Gauges • Dial Caliper Gauges Digital External Quicktest Gauges • Digital External Quicktest Gauges • Dial Indicators • Data Transfer Dial Test Indicators • Angle Test Indicators • Measuring Bridges • Clamping Holders • Contact Points...

#### Precision Feeler Gauges • Coating Thickness Gauges...

Feeler Gauges • Piston Feeler Gauges • Thickness Gauge Foils • Screw Pitch Gauges and Radius Gauges Cutting Gauges • Cutting Gauges and Twist Drill Gauges • Jet Gauges • Precision Taper Gauges Taper, Keyways and Spring Gauges • Welding Gauges • Thread Indicators • Thread Rules • Profile Gauges Stroke Counters • Piece Counters • Length Counters • Inspection Tool Kits...

# MARK-10 Corporation

Mark-10 Corporation is a designer and manufacturer of force and torque measurement products. Since our founding in 1979, our products have proven themselves in numerous applications at companies in the automotive, medical device, textile, pharmaceutical, etc.

**MARK-10**  
Product of USA

## Force Gauges



- Measure tension and compression force
- Capacities from 0.12 to 1,000 lbF (0.5 to 5,000 N)
- Measure real time and peak forces
- Several series available, each with different features, specifications, and price points

## Torque Gauges



- Measure clockwise and counterclockwise torque
- Capacities from 10 ozFin to 100 lbFin (7 to 1,150 Ncm)
- Measure real time and peak torque values
- Several series available – cap torque testers, torque tool testers, and universal testers

## Force / Torque Sensors



- Interchangeable with Mark-10 indicators
- Force capacities from 0.25 to 10,000 lbF (1 N to 50 kN)
- Torque capacities from 10 ozFin to 5,000 lbFin (7 Ncm to 550 Nm)

## Force / Torque Indicators



- Compatible with Mark-10 interchangeable sensors
- Measure real time and peak loads
- Three models available, each with different features, specifications, and price points

## Motorized Force Testers



- Produce tension and compression force up to 1,500 lbF (6.7 kN)
- Programmable speed produces more consistency than with manual stands
- Advanced functionality, such as pull to break, cycle, preload, maintain load, PC control
- Seamless force sensor interface
- Simple test creation wizards
- Robust data acquisition and management

## Manual Test Stands



- Produce tension and compression force up to 1,000 lbF (5 kN)
- Compatible with Mark-10 and other brand force gauges
- Reduces variability inherent in handheld force gauge tests
- Several models available, each with different loading methods, heights, and force capacities

## Wire Pull Testers



- Measure wire terminal crimp strength
- 200 lbF (1,000 N) capacity
- Manual and motorized models
- Accommodates wires of various diameters
- Onboard data storage and automatic output

## COF Gauges



- Measures static and dynamic coefficients of friction, with selectable sled weight
- Conforms to ASTM D1894
- 2 lbF (10 N) capacity

## Ergonomics Kits



- For industrial ergonomics and job task analysis
- Include force gauge, handles, padded attachments, and accessories
- Capacities from 100 to 500 lbF (500 to 2,500 N)



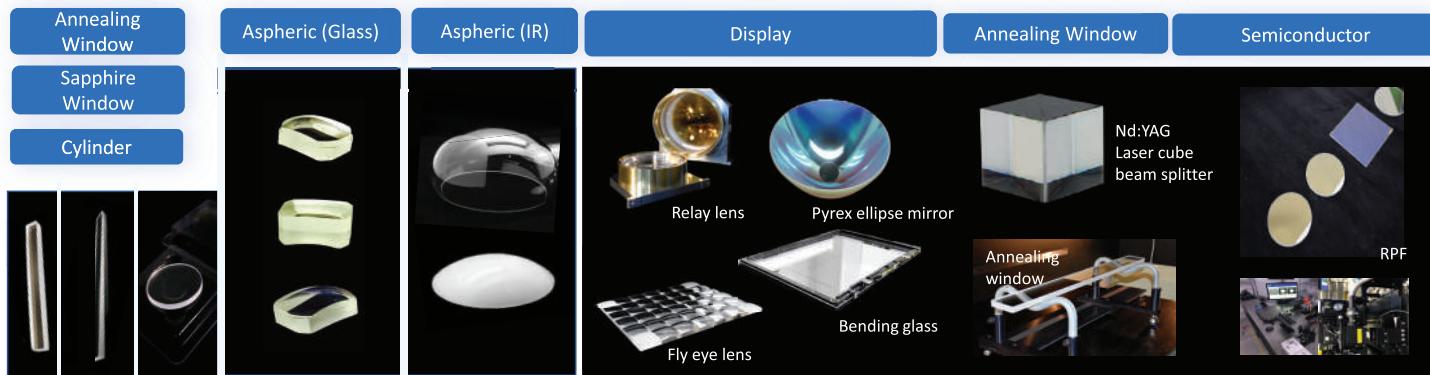
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## Optical Lenses

Green Optics has line-up for the world's best large optical equipment, and based on the reliable measurement, polish, coat and measures a large cylindrical lens, a lens and a mirror for the space industry.



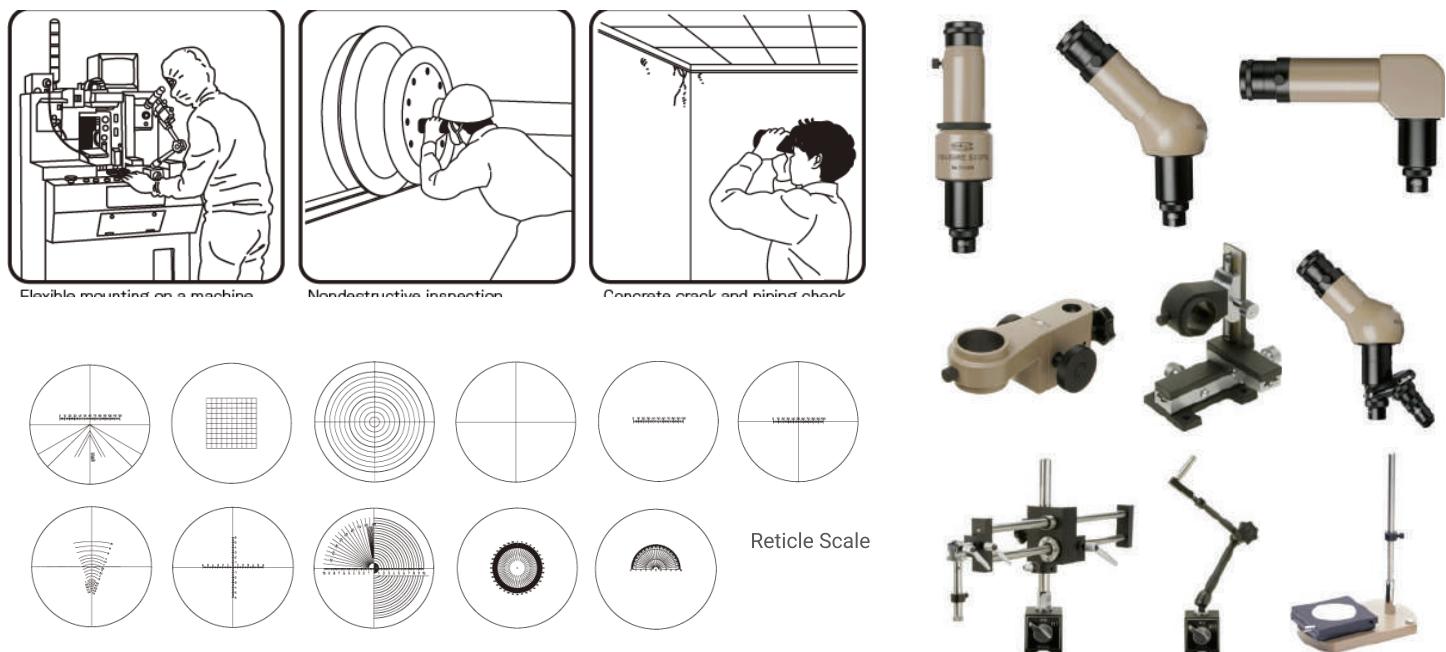
- **LIGHT WEIGHT TECHNOLOGY**
- **EOS (ELECTRO-OPTIC SYSTEM)**
- **OPTICAL GYRO BLOCK, PRISM**
- **HMD/HUD**

- **LARGE PRECISION REFLECTIVE LENS**
- **MIRROR**
- **PRECISION DOME**
- **WINDOW**



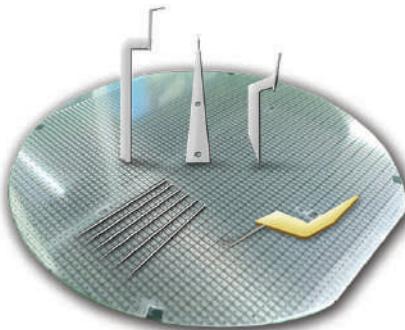
## Mono Eye Measure Scope for inspection process

MIRUC OPTICAL will continue to provide the best of technology, precision instruments and optical devices. Measure Scopes are microscopes essential to all industrial manufacturing, processing and inspection processes.

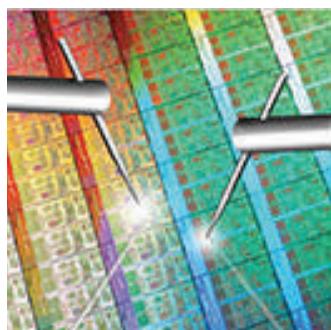
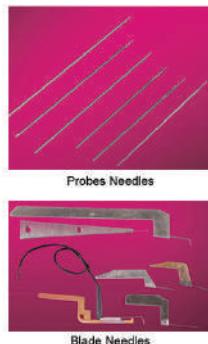


## LD Micro Precision

We design, manufacture and market wide range of micro precision components used in the semiconductor, disk drive, medical, automotive and other industry. Your global source for semiconductor and LED packaging solution.



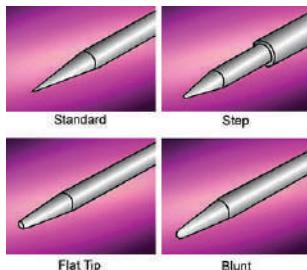
Test Probes



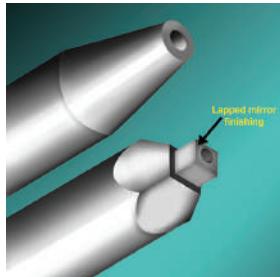
Wafer Mapping or Die Sort



Wire Bonding  
Electronic Flame Off (EFO)



Push Up Needle



Die Collect Pick Up Tool



Hitemp Pick Up Tool



Rubber Pick Up Tool



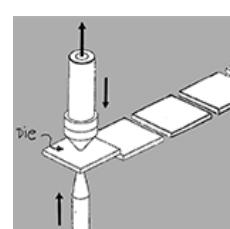
Epoxy Dispensing Tool



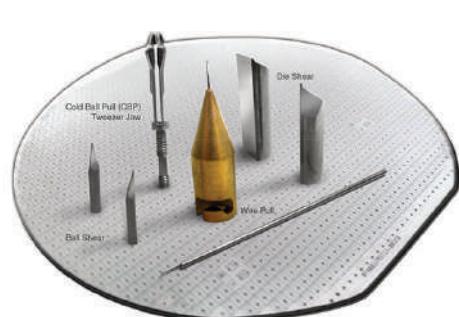
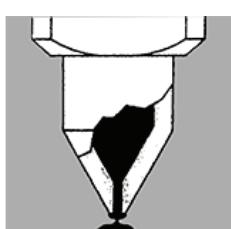
Epoxy Stamping Tool



Epoxy Dispensing Pen



Die Bonding



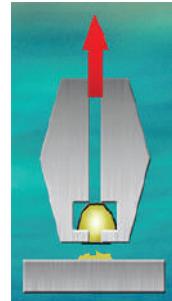
QA Bondtest



Ball Push Tool



Die Push Tool



Tweezer Tool



Wire Pull



## One Key Instant Measuring

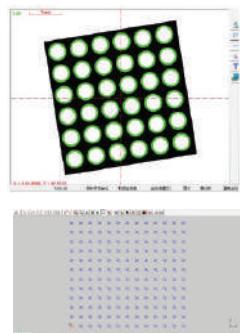
Measuring Sample can be placed randomly without fixture positioning, software can identify and match automatically. Unique patent technology of Edge extraction and lens distortion correction. Anyone can get started quickly without training.

### OPTIMOS OP-VMM Series | VMM Manual Video Measuring System



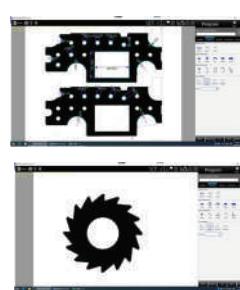
Vision System	OP-VMM-2100	OP-VMM-3200	OP-VMM-4300	OP-VMM-5400
3D Probe System <sup>1)</sup>	OP-VMM-2100P	OP-VMM-3200P	OP-VMM-4300P	OP-VMM-5400P
X/Y-axis Travel (mm)	200x100	300x200	400 x 300	500 X 400
Z-axis Travel		High precision linear guide, working travel 200mm		
X/Y/Z Linear Scale		Glass linear scale, Resolution, 0.0005mm		
Measurement Accuracy		E1(x/y)=2.5+L/100		
Repeatability		±2µm		

### OPTIMOS OP-VMC Series | CNC Automatic Video Measuring System



Vision System	OP-VMC-3200	OP-VMC-4300	OP-VMC-5400
3D Probe System <sup>1)</sup>	OP-VMC-3200P	OP-VMC-4300P	OP-VMC-5400P
2.5D Laser System <sup>2)</sup>	OP-VMC-3200L	OP-VMC-4300L	OP-VMC-5400L
Vision, Probe, Laser System <sup>1+2)</sup>	OP-VMC-3200S	OP-VMC-4300S	OP-VMC-5400S
X/Y-axis Travel (mm)	300x200	400 x 300	500 X 400
Z-axis Travel		High precision linear guide, working travel 200mm	
Z-axis Auto Focus Sensors		High - precision automatic focusing function module to achieve accurate focus.	
X/Y/Z Linear Scale		Glass linear scale, Resolution, 0.0005mm	
Operation Mode		Joystick controller, mouse operation, automatic detection program	
Measurement Accuracy		E1(x/y)=2.5+L/100	

### OPTIMOS OP-QVM Series | Instant Video Measuring System



QVM-Series automatic composite splicing vision measuring instrument has beautiful structure and easy operation. Combined with the measurement software developed by our company, accurate measurement can be realized. It is widely used in mechanical manufacturing, electronics, automobile, hardware, plastic, mold and other industries. It can detect the dimension, shape and position tolerance of workpiece accurately.

Vision System	QVM-3200	QVM-4300
X/Y-axis Travel (mm)	300x200	400 x 300
Z-axis Travel	High precision linear guide, working travel 200mm, grade 00 natural marble	
Z-axis Auto Focus Sensors	High - precision automatic focusing function module to achieve accurate focus.	
X/Y/Z Linear Scale	Glass linear scale, Resolution, 1µm	
Measurement Accuracy	XY-axis: ±5µm (L is the measured length, unit:mm)	
Repeatability	±2µm	

### Optimos OP-PV 1430 | Turret Lens Vertical Profile Projector



This turret lens profile projector is with long object working distance, large size surface and two sizes measurement range for your selection. The up and down hoisting structure provide a large focusing distance for Z direction. Transmission illumination is clear in image and intensity is corresponding to different magnification for different visual requirements.

Model	OP-PV 1430-S		OP-PV 1430-L	
Screen diameter (mm)	Φ300			
Magnification	10X	20X	50X	100X
Object Visual Field	Φ30mm	Φ15mm	Φ6mm	Φ3mm
Object Working Distance	75mm	69mm	63mm	41mm
Work table area	400 x 280 mm (S)		450 x 286 mm (L)	
X Travel, 0.001 resolution	0-200mm		0-250mm	
Y Travel, 0.001 resolution	0-150mm		0-150mm	
Z Travel	0-100mm (Focusing Direction)			
Accuracy of the instrument	(4+L/25)µm, L is the measured length in mm			

## Vision Inspection System Devices & Microscopes

Besmic Optimos is widely known as microscope supplier in Malaysia with variety of microscopes such as digital inspection system, metallurgical biological microscope, high compact and training microscopes. From handy inspection to tolerance

**BESMIC**  
**OPTIMOS**



IR Feature System



Polarizer Effect

### Optimos HDZVIS Series



Bottom light Base



3D Imaging System

### Optimos Auto Focus Series



Model	HDZVIS 0745	HDZVIS 0745 PLUS	AUTO FOCUS 0745 HD
Software	Basic View	Advanced Measurement	Auto Focus
Zoom Range	0.7X - 4.5X		
Objective lens	1.0X, WD=100mm (Optional: 0.3X, 0.5X, 1.5X, 2.0X)		
CCD Coupler	0.5X (Optional: 0.35X, 0.5X, 0.75X, 1.0X, 1.5X, 2.0X)		
Camera Sensors & Size	HDMI 1/2.86" Cmos Sensor		1080P/2M/Sony IMX 185(C) 1/1.9" (7.20x4.05)
Illuminator	LED 60 Ring Illuminator (Optional)		
Base	Post Stand (Optional)		

### Optimos OP-3000



### Optimos OP-7000 Series



Model	OP-7000	OP-7000-A	OP-3000
Viewing	With LCD Monitor 21.5"	Build-in 10 Inch Touch Screen	12inch HD LCD display
Zoom Range	0.7X - 5X with Objective 1X		
Camera	HDR image, 1/3" CMOS, 4.0 mega pixels,		
Main Objectives	1X main Objective, WD=105mm		

### Digital Camera HD Monitor

**OPSZ-61-T** Stereo Zoom Trinocular Body, WF10X ADJ Eyepieces (pair), 0.5X Video Coupler, 10"x12" Bottom Light Base Track Stand, XY Stage Table, LED 60 Ring Illuminator, Polarizer Kit, with Digital Camera HD Monitor with Software.

Model	OP-HD10	OP-HD20	OP-HD30
Series	Integrated display camera		
Display Size	12"		
Sensor Size	1/2.86"	1/3"	1/3"
Effective Pixel	Full HD		
Resolution	1920*1080@30FPS	1920*1080@60FPS	1920*1080@60FPS
Output	USB2.0,SD card	HDMI, USB, SD card	HDMI, USB, SD card
Measuring Tools	No	Yes	Yes
Exported into .CSV	No	No	Yes

### Optimos OPSZ-61 Series



Model	OPSZ-61-B1	OPSZ-61-T1	OPSZ-61-T2
Optical Tube	Binocular	Trinocular (2Way)	Trinocular (3Way)
Objective Zoom Range	0.67X - 4.5X (Zoom Knob)		
Working Distance	100mm (Built-in 1X Lens)		

### OPTIMOS OPSX-12 Series | Stereo Microscope



Model	OPSX-12-B1	OPSX-12-T1
Viewing	Tilting trinocular viewing head, 5~45 degree adjustable; binocular: trinocular= 100:0 or 0:100; interpupillary distance 5076mm; fixed eyepiece tube with lock screw	
Eyepiece	High eye point wide field plan eyepiece PL10X23mm, diopter adjustable	
Zoom Range	Zoom range: 0.8X~10X, zoom ratio: 12.5 : 1; built in aperture diaphragm; click stop for 0.8X, 1X, 1.5X, 2X, 3X, 4X, 5X, 6X, 8X, 10X	
Main objective	1X main objective, working distance 78mm	
	2X main objective, working distance 20mm	
Total Magnification	8X - 100X with (PL10X23mm, 1X Objective)	



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## Range of Microscopes

Stereo microscopes are also known as Dissecting or Low Power Microscopes. They are used for viewing 'macro' specimens that are opaque - light is unable to pass through. Carefully Designed for Precision. High-Performance Optics for a Wide Range of Industry.

### OPTIMOS Stereozoom Microscope



Magnification Lock  
OPEZ-45 | Range : 0.7X - 4.5X



OPSZ-45 | Range : 0.7X - 4.5X      OPSZ-61 | Range : 0.67X - 4.5X



OPSZ-50 | Range : 0.7X - 5X      OPSZ-0745 | Range : 0.67X - 4.5X



OPSZ04-6013 | Range : 1X / 3X  
OPSZ04-6024 | Range : 2X / 4X



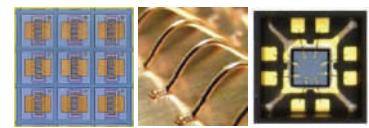
OPSZ-8050 | Range : 0.8X - 5X



OPSZ-145 | Range : 0.7X - 4.5X  
OPSZ-1065 | Range : 0.7X - 6.5X



OPSZ-1865-C | Range : 0.7X - 6.5X



Coaxial Lighting & Polarizer Lens

OP-PZ-0880 | Range : 0.8X - 5X / 0.8X - 8X

### Base, Arm and Stand



OP-B101 | 8"x10"



OP-B102 | 10"x10"



OP-B103 | Customised Large Base



OP-B201 | Bottom Light



OP-B202 | Bottom Light



OP-S101 / OP-S102

OP-S201 / OP-S202



OP-B301A | Long Arm G-Clamp



OP-B301B | Long Arm Base



OP-B302A | Flex.Arm G-Clamp



OP-B302B | Flex.Arm Base



OP-B203 | Track Stand



OP-S301

OP-S302



OP-B304A | Dual.Arm G-Clamp



OP-B304B | Dual.Arm Base



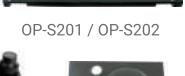
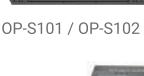
OP-B303A | Uni.Arm G-Clamp



OP-B303B | Uni.Arm Base



OP-B304B | Glider Base



OP-S401

OP-S402



OP-S501 | Toolmaker Stage



### Objective Lens



Infinity Long Working Distance Plan Achromatic Dark Field Metallurgical Objective Set  
(5x, 10x, 20x, 50x, 100x)

### Auxiliary Lens



Available: 0.3x , 0.5x , 0.75x , 1.5x, 2x

You may request for customized and preferences needs.  
Ask us, we will puzzle and build it.

### Vision Objective Lens



Available: 0.3x , 0.5x , 0.75x , 1x, 1.5x 2x

### Ring Adapter



With or without Glass cover from dust proof

### Polarizer



Reduce reflection of sample

Available:  
WF10x/18      WF25x/9  
WF10x/20      SWH10x  
WF10x/22      SWF20x  
WF15x/15      WF10x/20 ADJ  
WF15x/16      WF10x/22 ADJ  
WF20x/10      WF20x/12 ADJ  
WF20x/12      WF30x/8 ADJ

### Eyepiece



## Vision Inspection System Devices & Microscopes

Besmic Optimos is widely known as microscope supplier in Malaysia with variety of microscopes such as digital inspection system, metallurgical biological microscope, high compact and training microscopes. From handy inspection to tolerance

**BESMIC**  
**OPTIMOS**

### OPTIMOS OP-TM Series | Toolmaker Microscope

The instrument widely uses LED lighting, and the counter has two axes and three axes. According to the selection of the lens barrel, light device, objective lens, and focus mechanism. Submicron accuracy, excellent versatility, suitable for three-dimensional measurement of high-performance parts and electronic components. Whether it is big or small, simple or complex, novice or professional, the tailor made TM series measuring microscope can fully meet your measurement needs.

No Z-Axis Measurement	Model	OP-TM400	OP-TM600	OP-TM800	OP-TM1200	OP-TM1500
Working stage	Measuring Range	100*100mm	150*100mm	200*150mm	300*200mm	400*300mm
	Metal Platform Dimension	285*250mm	300*250mm	400*280mm	500*350mm	600*560mm
	Glass Dimension	170*145mm	204*145mm	245*192mm	350*250mm	450*350mm
	Rapid Release Device	Standard device				
Counter	Minimum Reading	1/0.5/0.1 $\mu$ m are optional				
	Function	Zero adjustment transfer direction, Metric conversion, RS232 output				
Measuring Precision		$(3+0.02L) \mu$ m, L is measuring length				



### Optimos OP-MX-300 | 12" Advance Metallurgical Microscope



Model	OP-MX-300
Viewing head	Tilting trinocular head (Erect image), 0-35 degree adjustable, interpupillary distance: 50-76mm, splitting ratio: 100:0 or 0:100
Eyepiece	High eye point wide field plan eyepiece PL10X/25mm, with adjustable diopter; reticle attachable.
Objective	BD semi-APO DIC objective 5X/10X/20X/50X/100X
	Long working distance BD semi-APO DIC objective 20X
	Long working distance BD semi-APO objective 50X/100X
Nosepiece	Electronic BD sextuple nosepiece with DIC slot
Stage	14 x 12 inches three layer mechanical stage with low position coaxial adjustment, size: 718mm X 420mm, moving range: 356mm X 305mm, with clutch handle for quick movement: glass plate for reflected use.

### Optimos OP-ICX41 | Inverted Biological Microscope

Model	OP-ICX41
Optical System	Infinity color corrected optical system
Viewing Head	45° inclined trinocular head, 360° rotatable, inter-pupillary range: 50-75mm, fixed splitting ratio=5:5
Eyepiece	High eye-point wide field plan eyepiece PL10X/22mm, with adjustable diopter, micrometer attachable
	High eye-point wide field plan eyepiece PL15X/16mm, with adjustable diopter
Objectives	Infinity plan achromatic objectives 4X/10X/20X/40X/60X
	Infinity plan phase contrast objectives 4X/10X/20X/40X
	Infinity plan fluorescence objectives 4X/10X/20X/40X/60X
	Infinity plan phase contrast and fluorescence objectives 20X/40X



### Optimos OP-SCX50P | Polarizing Microscope



Model	OP-SCX50P
Optical System	Infinity color corrected optical system
Viewing Head	30°inclined gemel binocular head, interpupillary distance 54~75mm, left diopter $\pm 5$ adjustable
Eyepiece	High eye-point wide field plan eyepiece PL10X22mm
	High eye-point wide field plan eyepiece PL10X22mm, with reticle
	High eye-point wide field plan eyepiece PL15X16mm
Objectives	LWD plan destressing objective 5X/10X/20X/50X
	Plan destressing objective 4X/10X/20X/40X/60X



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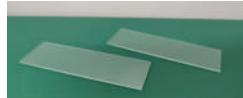
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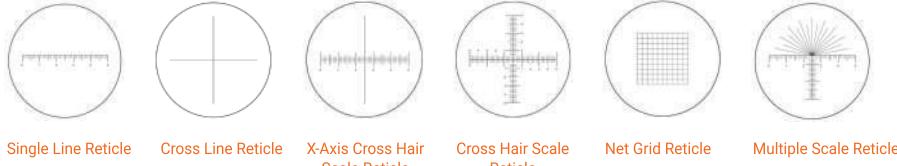
## Precision Tool & Accessory

Besmic Optimos carry engineering precision inspection, marking out (layout), and tooling setup. Also, industrial cleanrooms are essential to any manufacturing process where particulate contamination can affect the quality of goods produced.

### Lab Glass Slide



### Reticle Glass Scale



### Lens Cleaner ROR



### Precision Tools

Types of Pin gauge, plug gauge, smooth pin gauge, hole diameter pin gauge, Go-No gauge, inspection gauge, inspection pin, Go gauge, No gauge and etc.  
Metric: 0.10mm-40.00mm  
Size Range(Step) : Step 0.01 mm, 0.02mm, 0.025mm, 0.05mm, 0.10mm, 0.50mm, 1.00mm and so on.  
Inch: Size Range 0.011 in-1.000in  
Size Range: 0.001in, 0.0005in and so on, Accuracy: ±0.001mm, ±0.002mm, +0.0025mm, -0.0025mm, +0.005mm, -0.005mm and so on.)



Pin Gauge / Block Gauge (Steel, Carbide, Tungsten Ceramic)  
Precision Surface Plate (Granite, Cast Iron)

### Desktop Ionizing | OP-iF51DC-001



### Ionizing Air Blower | OP-iF52DC



Model	OP-iF51DC-001
Input Voltage	15V
Power	9W
Working voltage	± DC4000-DC7000V
Ion emission	Steady-state DC
Emitter electrode	Tungsten Alloy
Discharge range	750 X 300 mm (L*W)
Discharge speed	≤ 2S (300mm testing center from the air outlet)

Model	OP-iF52DC-60C	OP-iF52DC-80C	OP-iF52DC-100C
Input Voltage	AC220V/50Hz or 110V/60Hz		
Power	<15W	<18W	<25W
Working voltage	±DC 4000-DC7000V		
Ion emission	Steady-state DC		
Emitter electrode	Tungsten alloy		
Discharge structure	Uncoupled electrical contact (discharge cylinder)		
Discharge range (L*W*H)	600*750*550mm	800*750*550mm	1000*750*550mm

### Ionizing Air Gun | OP-2456AC



### Static Meter | OP-ST



Model	OP-2456AC
Working voltage	AC2800V
Power	20W
Discharge distance	150-300mm
Working temperature	0-50 °C
Working humidity	30-70%RH
Compressed air connector	Φ8mm
Air pressure	0.2-0.6MPa

Model	OP-ST1301	OP-ST1302
Detection range (KV)	0.001 - ±2.00	0.01 - ±20.00
Exterior color	Grey shell grey key	Black shell grey key
Detection accuracy	± 10%	
Detection distance	± 25mm ± 1.0mm	
Input voltage	DC3V (2*AAA)	
Net Weight	146g	

## Precision Weight & Scale

Precision Balances & Scales Manufacturer Design and manufacturing of weight measurement. Suitable For a Variety Of Industries Including Food, Chemicals, Manufacturing & More.

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ITEM NO.	Width (m)	Length (m)	Capacity (kg)	Division value	Material
IWFS1200-MS0808	0.8	0.8	300-3000	1/3000-1/6000	Mild steel
IWFS1200-SS0808	0.8	0.8	300-3000	1/3000-1/6000	Stainless Steel

**Floor Scale With Frame  
(Model: IWFS1201)**



ITEM NO.	Width (m)	Length (m)	Capacity (kg)	Division value	Material
IWFS1201-MS0808	0.8	0.8	300-3000	1/3000-1/6000	Mild steel
IWFS1201-SS0808	0.8	0.8	300-3000	1/3000-1/6000	Stainless Steel

**Floor Scale  
(Model: IWFS1200)**



ITEM NO.	Width (m)	Length (m)	Capacity (kg)	Division value	Material
IWFS1202A-MS0808	0.8	0.8	100-3000	1/3000-1/6000	Mild steel
IWFS1202A-SS0808	0.8	0.8	100-3000	1/3000-1/6000	Stainless Steel

**Low Profile Floor Scale  
(Model: IWFS1202A)**



ITEM NO.	Width (mm)	Length (mm)	Capacity (kg)	Division value	Material
IWBS1300-MS3040	300	400	100	1/3000-1/6000	Mild steel
WBS1300-SS3040	300	400	100	1/3000-1/6000	Stainless Steel

**Portable Bench Scale/Logistic Scale  
(Model: IWBS1302)**



ITEM NO.	Width (mm)	Length (mm)	Capacity (kg)	Division value	Material
IWBS1302-MS3040	300	400	50-100	1/3000-1/6000	Mild steel
IWBS1302-SS3040	300	400	50-100	1/3000-1/6000	Stainless Steel

**Crane Scale: (Model: IWCS2200M)**

ITEM NO.	Max. Cap (kg)	Min. Cap (kg)	Division value (kg)
IWCS2200M-100	100	1	0.05
IWCS2200M-200	200	2	0.1

**Economical Bench scale  
(Model: IWBS1300)**



Model	IW-418				
Capacity	6kg	15kg	15kg	30kg	30kg
Division	0.1g	0.1g	0.5g	0.1g	1g
Product Size	36x31x11cm				
Platform Size	32x32cm				
Display Mode	LCD				
Power Supply	AC/DC				

**Weighing: (Model: IW-418)**

Model	IW-FAH				
Capacity	100g	200g	220g	30kg	30kg
Division	0.0001g (0.1mg)	0.0001g (0.1mg)	0.0001g	0.1g	1g
Weighing units	g, oz, ct, lb.				
Display(mm)	Large LCD (white bright backlit) (L×W) 4.7"×2.4" (120×60 mm)				
Weighing pan	Circle 80 mm SST 304				
Dimension(mm)	350×210×360 mm				
Weight	Net weight 7kg; Gross weight 8kg				
Power supply	AC (220-240V 50HZ / 110-120V 60HZ)				

**Pallet Truck Scale  
(Model: IWBS1400)**



**Weighing: (Model: IW-FAH)**



Other size and weight is available upon request.



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## Portable Testing Instrument

Professional research and development of portable testing instrument. Our Instruments are widely used in automobile manufacturing, repairing industry, plastic, wood, food, stone industry, construction industry, coating thickness, laboratory and so on.



Gloss Meter



Whiteness Meter



Coating Thickness



Vibration Meter



Mechanic's Stethoscope



Ultrasonic Thicknesss Meter



Leeb Hardness Tester



Shore Hardness Tester



Foam Hardness Tester/Memory Foam Hardness Tester



Screen Tension Tester



Fruit Hardness Tester



Belt Tension



Window Tint Meter



Sound Level



Lux Meter



Anemometer



Tachometer



Stroboscope



Moisture Meter



Humidity Meter & Dew Point Meter



High Accuracy Temperature Meter



Surface Profile Gauge

Our instruments include Ultrasonic Thickness Meter, Coating Thickness Gauge, Moisture Meter, Vibration Meter, Three Axis Vibration Meter, Surface Roughness Tester, Surface Profile Gauge, Leeb Hardness Tester, Shore Hardness Tester, Gloss Meter, Window Tint Meter, Tachometer, Engine Tachometer, Anemometer, Sound Level Meter, Stroboscope, Lux Meter, Dew Point Meter, Humidity Meter, Temperature Meter, Belt Tension Tester, PH/ORP Controller, Throttle Potentiometer Tester, Fuel Pressure Meter, etc

## Optical Light System

Machine Lamp & Magnifying lamp for industrial inspection use. Great for optical inspection for production line. Customize lighting for machine vision systems. Accessories light can be attached to optical machine or industrial machines.

**Everlite**



Fluorescent Magnifying Lamp



Day / UV Magnifying Lamp



ESD LED Magnifying Lamp



Combo Lamp



Fiber Optic Illuminator



LED Illuminator



Fluorescent Illuminator



Tube Illuminator



Machine Lamp

## Calibration Services

We offers a wide range of calibrations to ensure you meet your requirements to your local and global needs. Ensure the highest accuracy by comparing your device to reference standard. Receive standards-compliant measurement with Traceable results.



### Calibration Services

Bescal Calibration specializes in a variety of dimensional calibration disciplines. From Microscope to Coordinate Measuring Machine, our technicians have years of experience with dimensional calibration equipment. A calibration is to determine your instrument accuracy, whether it is meet your test result requirement for work (in-tolerance) or is (out-tolerance). When was the latest update of your calibration report? The older instruments gets or the high usage of instrument will puts you at risk for facing smaller accuracy. Or worse, critical parameters may not be tested at all.

This knowledge base helps us bring our customers the best-in-class measurement solutions they deserve. Take a look below at our scope of disciplines in physical dimensional & Mass calibration:

- Caliper
- Micrometer
- Indicator
- Microscope
- Height Gauge
- Profile Projector
- Video Measuring Machine
- Coordinate Measuring Machine
- Balance Scale
- Platform scale
- Others



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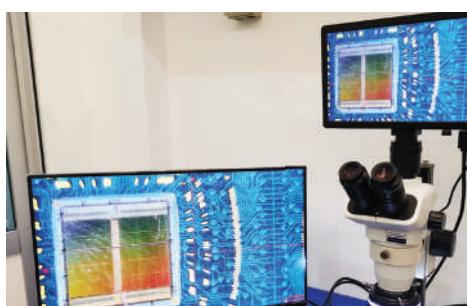
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# METROLOGY SERVICE CENTRE

INSPECTION | MEASUREMENT | MAINTENANCE | CALIBRATION | SOFTWARE | REPAIRING



## Metrology Equipment:

- Portable Measuring Machine
- Coordinate Measuring Machine
- Industrial Computed Tomography (CT Scanner)
- Nano Contour Surface Instrument
- Precise Shaft Measurement Instrument
- Video Measuring Machine
- Measuring Profile Projector
- Hardness Tester
- Digital Inspection System Device & Microscope
- Horizontal & Height Measuring Gauge
- Robot Machine
- Measurement Small Tools
- Gear Measurement Instrument
- Testing Instrument
- Force & Torque Instrument

**FOR ENQUIRY OR AN APPOINTMENT, CALL US NOW!**

**Besmic Optic Industry (M) Sdn Bhd**

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11960 Bayan Lepas, Penang, Malaysia.

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