HITEC
Messtechnik GmbH

Line-Scan

Measuring Machine

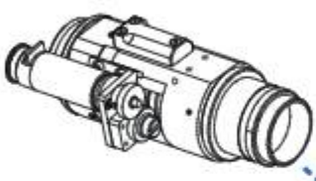
- CZW series

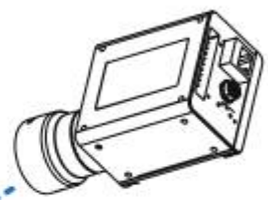
QuickCheck

Hardware Main Components

Line-Scan measuring machine is a new generation of optical image measuring system, it combines high accuracy and efficiency which has surpassed traditional 2D measuring methods significantly.

-High-precision machine tool to extend measuring range.
-Innovative measuring method: Image-capture first, measurement later.
-New automatic positioning function that accelerates measuring speed greatly.



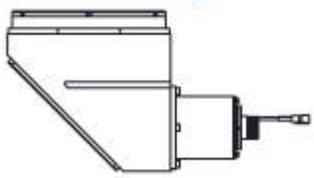


►Variable magnification lens

Motorized magnification lens set:
when you need to observe or measure a small range of extremly small parts, High magnification variable magnification (0.75x-4.5x) lens can clearly identify the details, such as traditional 2D measurment.

►Height sensor

Equipped with white confocal height sensor which can measure the height of object, high dynamic performance and excellent signal-to-noise ratio to ensure the surfaces with different reflection intensities and slopes, and get the best measuring results.



►Parallel light

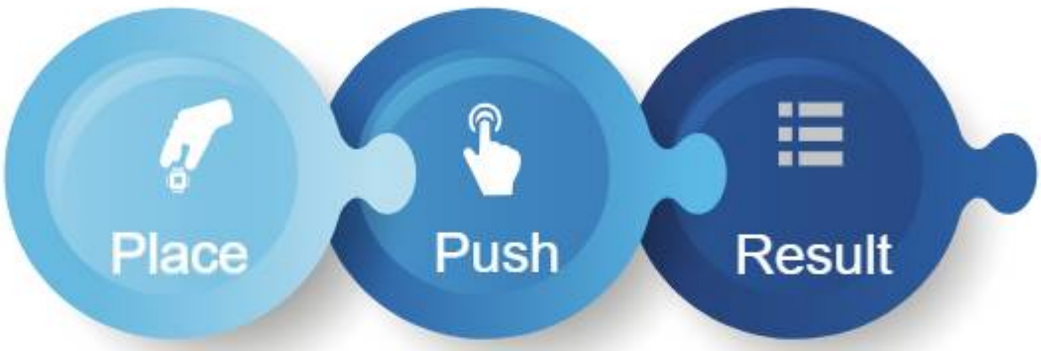
Uniform illuminated parallel light, raise the object contour & depth field of objects, good for huge thickness objects.

►Large-aperture Telecentric lens

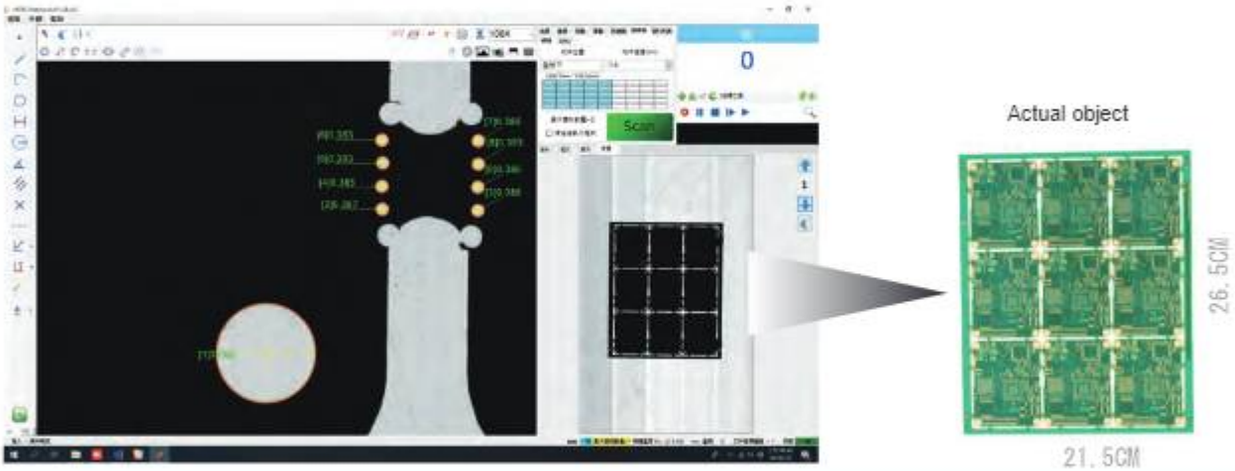
Large diameter double-sided telecentric lens, no perspective error, approximately zero distortion and high depth of field, No need to adjust the focus.

Software Measurment Funtion

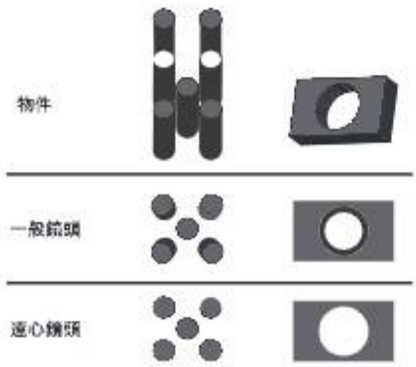
Only 3 Steps to finish measuerment



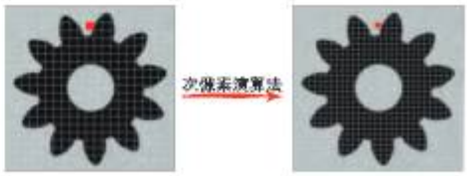
Full-fieled top view



Low viewing angle error optical design
The size is not prone to viewing angle errors due to different heights of the object to be measured.



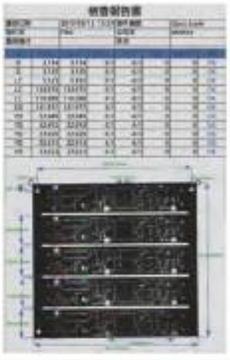
High-precision sub-pixel image boundary algorithm
(Accuracy is about 0.2 pixels)



Measurment Main Funtion

The position of the object to be tested can be placed arbitrarily Automatically identify multiple objects to be tested at the same time.Multiple identical objects can be placed arbitrarily within the scanning range.Measure the dimensions of the entire object and determine individual tolerance values.

Multiple report formats (TXT, CSV, XLS)
Measurement results and graphics can be exported to EXCEL or TEXT file, and quickly output the required report.



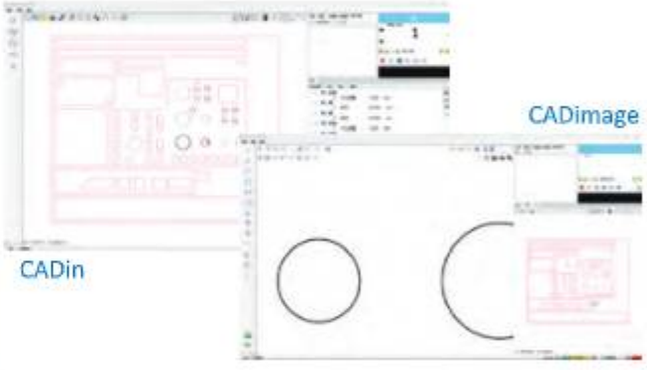
Quick measurement of geometric dimensions
(0.05~0.02 Sec/Elem.)

Point / line / circle / ARC / curve... and other elements

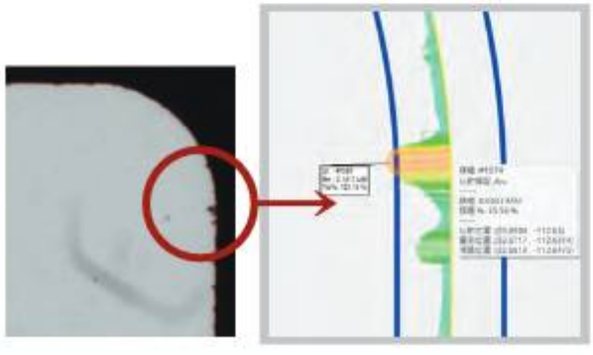
Geometric tolerances as midpoint/intersection/ distance/angle...

Original / Axial ...
Coordinate align setting

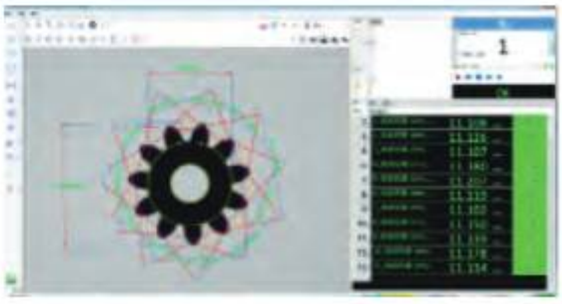
CADin, CADimage editing program
No actual object under test is required, just read in DXF, And edit the measurement program to start measurement.



Contour measurement
Select the measurement range and import the DXF file, Perform line profile comparison.

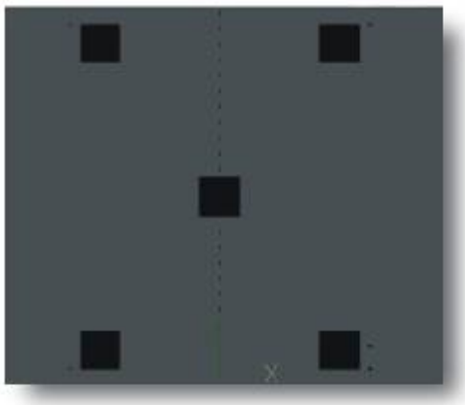


Non-contact gear measurement and screw measurement
Internal gear/spur gear
Tooth tip circle diameter (da)•Tooth root circle diameter (df)• Over pin tooth thickness (dm)•Pitch tooth thickness (s)• Pitch (p)•Tooth thickness (s)•Tooth tip height (ha)

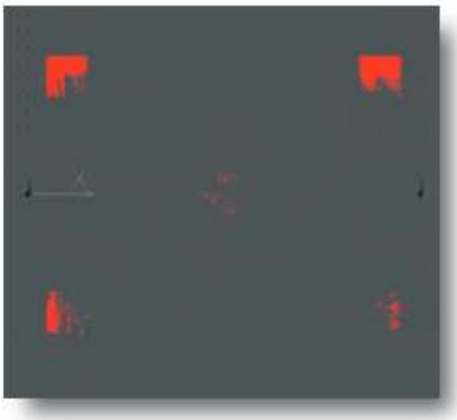


Hole Analysis Optional Funtion

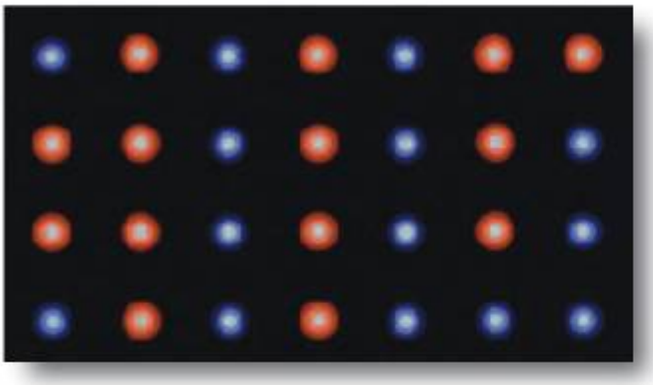
All hole location maps



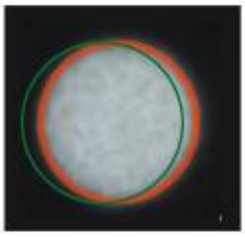
NG holes location maps



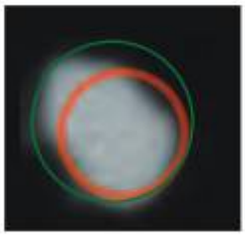
Measuring result



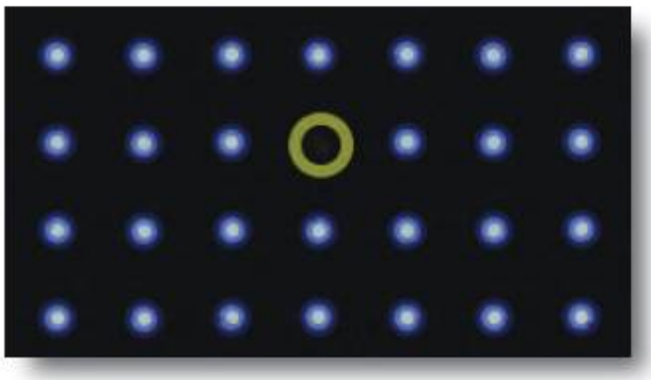
X,Y position NG



D diameter NG



Judge OK



Hole detection:NG

Hole Analysis Optional Funtion

Graphical interface
Easy to learn
Easy to understand

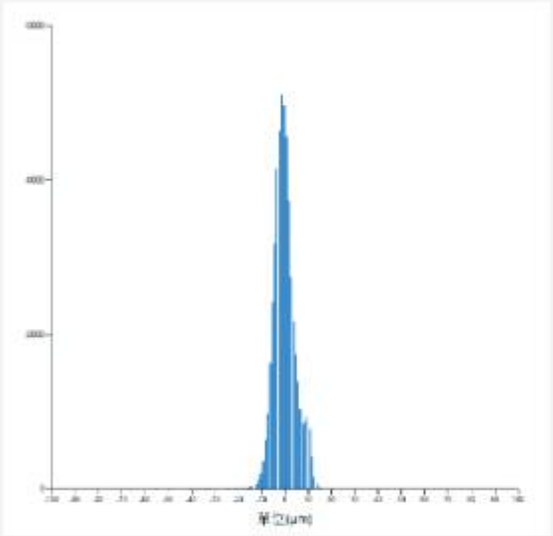
DXF, Excellon
Direct input
Transit-measurement

Complete SPC
Analyze data,
Precise analysis
Hole location &
diameter

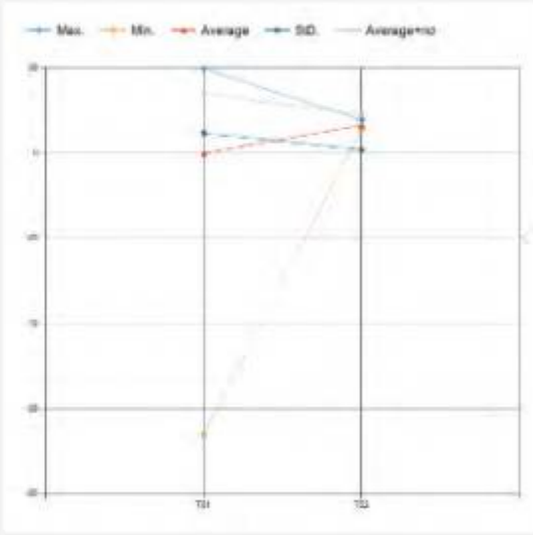
Only takes 1 sec to measure 1000 holes.
Corresponds to 10 million-hole position measurement

Analysis chart of hole position measurement results

Hole diameter histogram

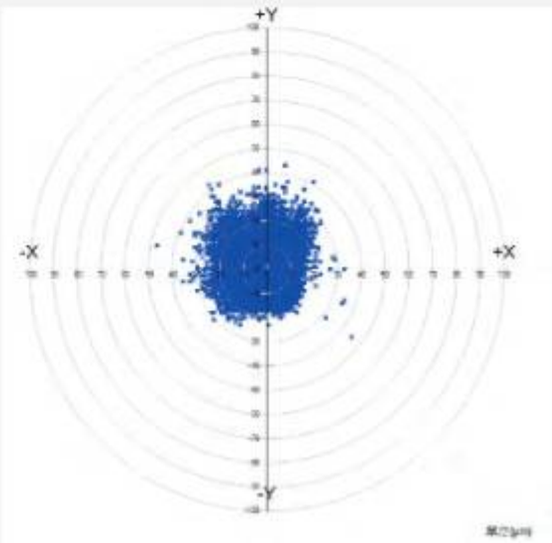


Hole position and pore diameter variation chart



Hole expansion and contraction direction

Hole position target map



PCB Detection Optional Funtion

Graphical interface
Easy to learn
Easy to understand

Array information
Transition
measurement

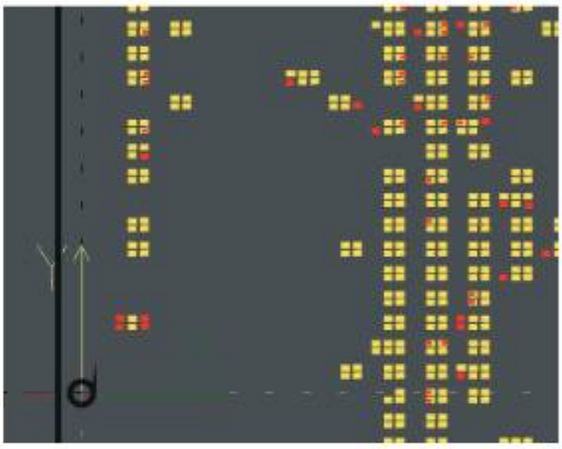
Only 1 sec for
300 measuring
distances

Corresponds to
2 million measuring
distance

PCB outlook

Judge NG

Judge NG (Enlarge)

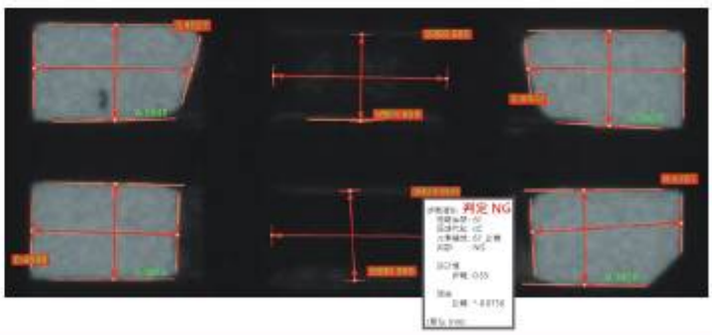


Distance Judge OK

Distance no. : 61
Distance code : LC
Element code : 61_distance
Judgement : NG

Design value
Distance: 0.55mm

Deviation
Distance: *-0.0758mm

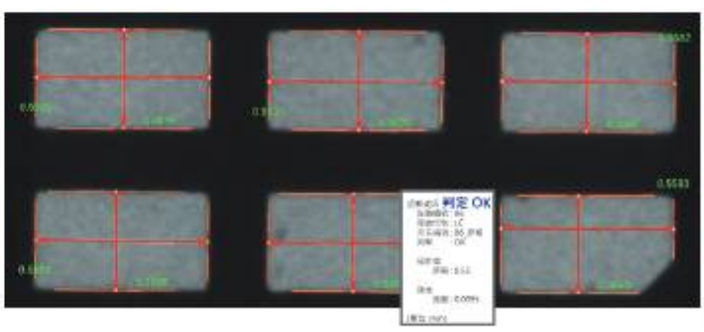


Distance Judge NG

Distance no. : 86
Distance code : LC
Element code : 86_distance
Judgement : NG

Design value
Distance: 0.55mm

Deviation
Distance: *0.0095mm



HITEC Messtechnik GmbH

機台規格 MACHINE SPECIFICATION

型號 Model	CZW-30	CZW-43	CZW-60	CZW-70	CZW-80
機構 Mechanism	檯面移動	橋式移動	檯面移動	檯面移動	檯面移動
行程 Travel					
寬 (X・mm)	300	400	600	600	750
長 (Y・mm)	260	360	560	700	740
高 (Z・mm)	50	50	50	50	50
精度 (um) (注 1) Accuracy	±3+L/200	±4.5+L/200	±4.5+L/200	±4.5+L/200	±4.5+L/200
掃描方式 Scanning method		往復掃描			
最大速度 (mm/sec) Max.speed	250	200	250		
最大加速度 (mm/sec) Max.accel.	1000	400	1000		
XY光學尺 (um) Encoder	0.1				
量測速度(elem./sec) Meas. speed	20-50				

注 1：工作環境溫度 25℃±2℃、濕度 20～80%
Mark1: Working environment temperature 25℃+/-2℃, humidity20~80%

鏡頭規格 LENS SPECIFICATION

規格 Specification	35 -16	45 -16	55 -16	65 -16	80 -16	100 -16
掃描寬幅 F.O.V. (mm)	35.1	45.1	55.1	64.9	80.9	99.9
倍率 Mag.	1.636	1.272	1.04	0.884	0.709	0.574
景深 D.O.F. (um) (注 2)	39	65	97	123	191	291
像素大小 (um) Pixel size	2.1	2.8	3.4	4.0	4.9	6.1
最小量測長度 (um) Min.meas.length	21	28	34	40	49	61
最小量測孔直徑 (um) Min.meas. hole diameter	43	55	67	79	99	122
最大掃描速度 (mm/sec) Max.scanning speed	82	106	129	152	201	249

注 2：DOF 過小掃描時如待測物平坦度不良, 存有失焦風險
Mark2: There could be losing focus risk while the D.O.F. is too small and the flatness of object is poor.

★：規格若有變更,不另行通知
★: Spec. is subject to change without notice

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