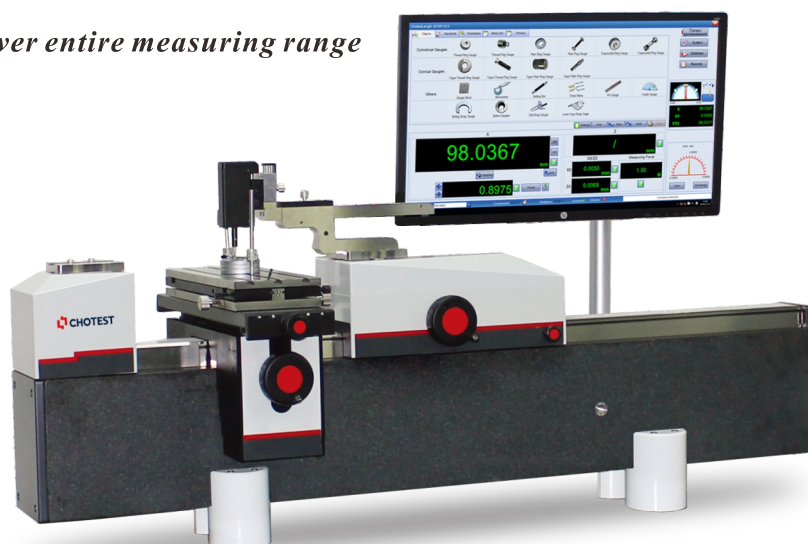


## SJ5100 Universal Length Measuring Machine

*Bidirectional constant measuring force*

*Absolute Measurement over entire measuring range*



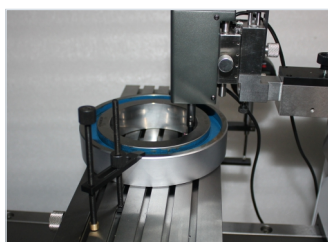
### Description

Thanks to precision glass-scale, precision guide rail and precision temperature compensation unit, cooperating with different probes and workholders, SJ5100 achieves high-precision measurement of various dimensional gauges. Moreover, because straightness of precision guide rail is very small, its repeatability is excellent by applying by bidirectional constant measuring force technology. After the software records the coordinates from precision glass-scale and introduces the feedback data of measuring force device and temperature sensor, the dimensional parameters are calculated according to the relevant definitions and formulas from selected norm. The whole measurement process can be completed in 3minutes.

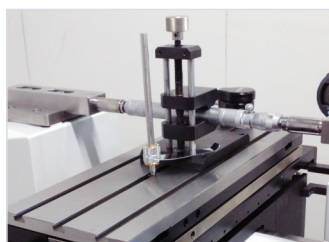
### Functions

1. Measure gauge blocks, thread gauges, plain gauges, Taper thread/plain gauges, pin gauge, caliper, spline gauges, setting bars, snap gauges, internal/external micrometers, feeler gauges, Dial indicators, dial bore gauge, dial test gauges, internal micrometer three points, etc.
2. Measure various gauges according to GB, ISO, BS, ANSI, DIN, JIS, API standards. With comprehensive and professional standards in database, it meets requirements of most customers.
3. Conform to a variety of verification regulations & measuring standards. All test results are generated according to relevant regulations and standards.
4. User-friendly software.
5. With centralized database management for measuring records, the operator can query and manage the measuring records according to object type, testing institution, manufacturing number, inspector, submitted institution, equipment number, inspection date and effective date.
6. Can print multiple selected test records or test certificates from database at once time.
7. Can export test data to Word, Excel, AutoCAD (optional) files.
8. Data backup and restore.
9. Support user-defined template of report.
10. Support user-defined program and tolerance.

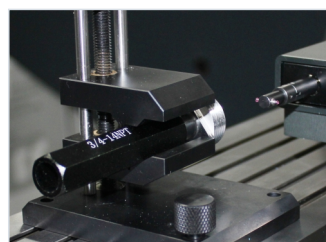
## Typical Application



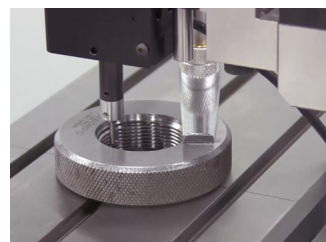
Plain ring gauge



Inside micrometer



Thread plug gauge



Thread ring gauge



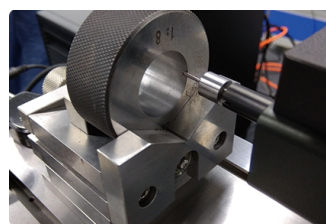
Bearing outer ring



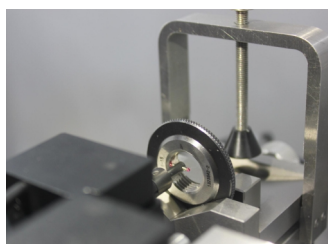
Pin gauge



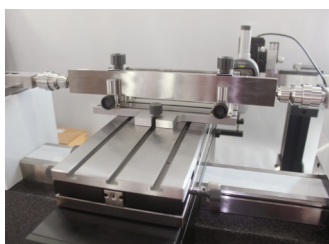
Bearing inner ring



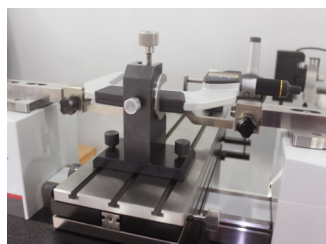
Taper plain ring gauge



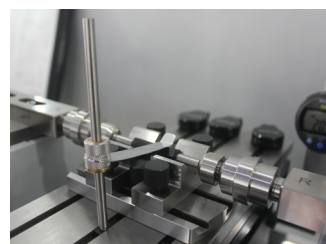
Taper thread ring gauge



Gauge block

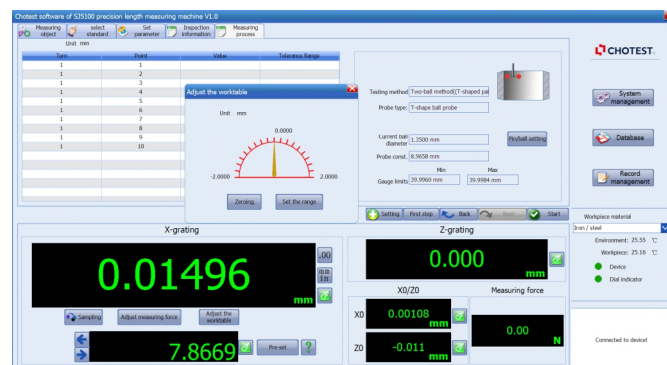
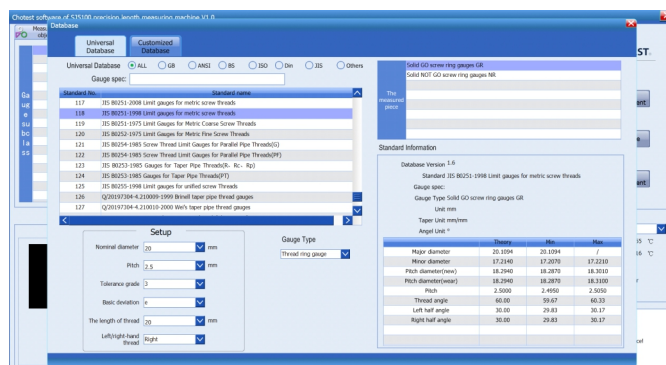
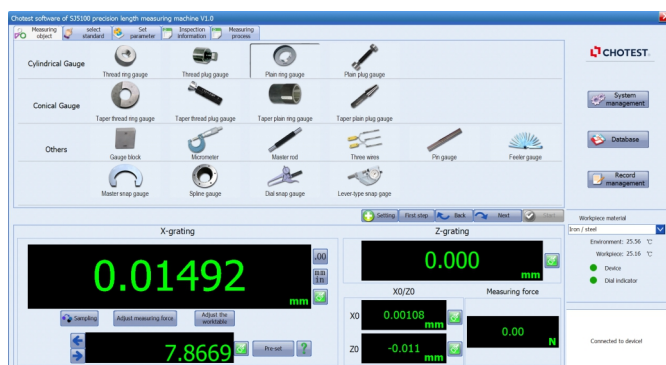


Outside micrometer

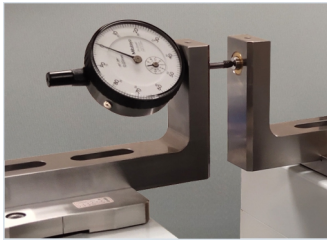


Setting bar

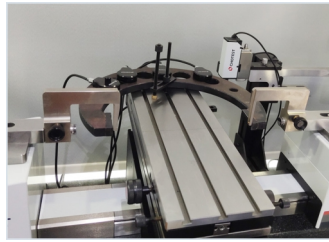
## Software Interface



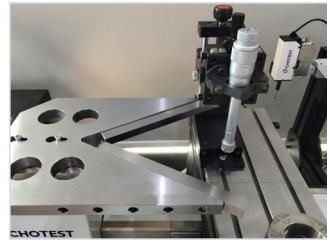
## More Application



Dial indicator



Snap gauge



Inside micrometer three points



3m outside micrometer

## Parameters

Item No.		SJ5100-UP300	SJ5100-UP600	SJ5100-UP1000
Absolute measurement	Outside range	(0~340)mm	(0~640)mm	(0~1040)mm
	Inside range	(0.7~200)mm	(0.7~500)mm	(0.7~900)mm
Indication error		$\pm(0.09+L/1500)\mu\text{m}$ (Note: L is measured length in mm)		
Repeatability (2s)		0.06 $\mu\text{m}$	0.06 $\mu\text{m}$	0.08 $\mu\text{m}$
Resolution		0.01 $\mu\text{m}$		
Max pitch diameter(mm)		200(Ring)/250(Plug)		
Measuring force		0.1N, 0.3N, 0.5N, (1~10)N continuously adjustable by hand		
Dimension(mm)		1400x400x450	1400x400x450	1650x400x450
Weight (kg)		180	180	300
Five-axis object table	Item No.	ST-30.1		
	Z-axis	(0~50)mm		
	Y-axis	$\pm 25\text{mm}$		
	X-axis floatation	$\pm 10\text{mm}$		
	Z-axis rotation	$\pm 3^\circ$		
	Y-axis yaw	$\pm 3^\circ$		
	Loading capacity	>30Kg		
	Dimension	350mmx 125mm		

## Parameters

Item No.		SJ5100-300A/B	SJ5100-600A/B	SJ5100-1000A/B	SJ5100-1500A/B	SJ5100-2000A/B	SJ5100-3000A/B
Absolute measurement	Outside range	(0~340)mm	(0~640)mm	(0~1040)mm	(0~1540)mm	(0~2040)mm	(0~3040)mm
	Inside range	(0. 7~200)mm	(0. 7~500)mm	(0. 7~900)mm	(0. 7~1400)mm	(0. 7~1900)mm	(0. 7~2900)mm
Indication error		A series: $\pm(0.12+L/1000)\mu\text{m}$ ; B series: $\pm(0.20+L/1000)\mu\text{m}$ (Note: L is measured length in mm)			A series: $\pm(0.25+L/1000)\mu\text{m}$ ; B series: $\pm(0.4+L/1000)\mu\text{m}$ (Note: L is measured length in mm)		
Repeatability (2s)		A Series:0.08 $\mu\text{m}$ ; B Series 0.10 $\mu\text{m}$			A Series:0.15 $\mu\text{m}$ ; B Series 0.2 $\mu\text{m}$		
Resolution		0.01 $\mu\text{m}$			0.01 $\mu\text{m}$		
Max pitch diameter(mm)		200(Ring)/250(Plug)			200(Ring)/250(Plug)		
Measuring force		0.1N, 0.3N, 0.5N, (1~10)N continuously adjustable by hand					
Dimension(mm)		1400x400x450	1400x400x450	1700x400x450	2200x400x450	2700x400x450	3700x400x500
Weight (kg)		150	150	180	310	360	450
Five-axis object table	Item No.	ST-30.1					
	Z-axis	(0~50)mm					
	Y-axis	$\pm 25\text{mm}$					
	X-axis floatation	$\pm 10\text{mm}$					
	Z-axis rotation	$\pm 3^{\circ}$					
	Y-axis yaw	$\pm 3^{\circ}$					
	Loading capacity	>30Kg					
	Dimension	350mm× 125mm					

## Features

### 1. Absolute measurement:

Thanks to precision glass-scale for positioning of measuring spindle, SJ5100 can implement the precision absolute measurement over the entire range.

### 2. High precision and High stability:

(1) Precision glass-scale; Resolution: 0.01 $\mu$ m.

(2) Precision grinding guide rail with excellent straightness lays foundation for accuracy and stability of measurements.

(3) Measuring values are acquired truly and accurately by using high-rigid and deformation-free measuring slider.

(4) Thanks to marble base, the machine is protected against external vibration interference, which ensures stable and reliable working.

(5) The headstock is very stable during travel by using compact friction driving structure.

### 3. Bidirectional constant measuring force:

(1) Bidirectional constant measuring force system reduces the influence of measuring force on measured values, which helps to improve the accuracy of measurements.

(2) Manual continuously-adjustable measuring force.

(3) The smart sensing system of measuring force eliminates error caused by un-horizontal position of the machine and surrounding environment vibration automatically.

### 4. Intelligent management and measurement software system:

(1) More than 15 years of practical experience in the design of measurement software; User-friendly software is designed for customers to operate the system fast.

(2) Operation of the machine is simple, so the operator can be trained to use it shortly.

(3) With built-in a variety of norms, the powerful software can process the measured data and generate various test reports automatically.

(4) Can calculate various dimensional parameters for different gauges according to selected norm.

(5) The operator can find the inflection point of workpiece fast and simply through the guide function of software.

### 5. High-performance five-axis object table:

(1) High-performance cross-roller for rails of X, Y, Z axis: very small friction, excellent stability and large loading capacity.

(2) Function of fine adjustment of Y-axis travel & tilt & horizontal rotation is designed for the operator to find the inflection point of each axis easily.

(3) The software can collect data automatically from Z-axis digital dial indicator(standard) and Y-axis digital dial indicator(optional), which is used for measurements of taper thread gauges and taper plain gauges.

### 6. High-performance inside size measuring unit:

With this unit, SJ5100 can calibrate small ring gauges(the min thread ring gauge is as small as M3; plain ring gauge is as small as diameter 0.5mm). Adjustable measuring force is 0.3N~10N; Repeatability of plain ring gauge's measurements is less than 0.1 $\mu$ m.

## Configuration

### Standard configuration

1. SJ5100 host machine	1 pc
2. ST-30.1 five-axis object table	1 set
3. ST-S1.1 one-coordinate floating object table	1 set
4. Measuring probes	4 sets
5. Three-wire for thread measurement	24 pairs
6. SF-P60.1 workholder for plug gauges	1 set
7. SF-V1.1 V-shaped supporting block for setting bar	1 set
8. SF-GB1.1 and SF-GB2.1 supporting fixture for gauge block	1 set
9. ST-CL1.1 and ST-CL2.1 clamping fixture	1 pair of each
10. SDE-R200.1 Precision inside dimension measuring device	1 set
11. SB-T12.1 T-shaped ruby ball probe	1 set
12. SB-S4.1 single ruby ball probe	1 set
13. SH-L1.1 big measuring jaw for ring gauge	1 set
14. SH-L2.1 small measuring jaw for ring gauge	1 set
15. Standard plain ring gauge 40mm	1 set
16. Measuring software	1 set
17. Built-in popular standards in database	1 set
18. Desktop computer	1 set
20. Supporting fixture DLB-200 for monitor	1 set
21. Aluminum alloy suitcase for accessories	1pc
22. Temperature compensation device	1 set
23. Product certification and Warranty card	1 set
24. User manual	1 set
25. Free services and repairs	1 year

### Optional configuration

1. Marble work table	1pc
2. SDE-Z200.1 Precision inside dimension measuring device	1set
(for internal measurement and taper thread gauge measurement)	
3. SF-Z1.1 workholder for taper plain/thread ring/plug gauge	1pc
4. Digital micrometer indicator with cable(for Taper thread/plain gauge)	1pc
5. Measuring jaw (for spline ring gauge/ outer ring of bearing)	2pairs
6. Measuring cap (for spline plug gauge/ inner ring of bearing)	1pair
7. Small measuring bar for spline gauge measurement(12 pairs):	12pairs
8. Small measuring bar for bearing measurement(2 pairs)	2pairs
9. T-shaped ruby ball probe(For M3, M4 thread ring gauges)	4pcs
10. Single ruby ball probe(For ring gauges 0.7~4mm)	2pcs
11. SR-H65.1: Axis raising(H=65mm) block for measuring bar	1set
RH-6.5_8.0: Small measuring bar with plain face 8	
12. Portal bubble level gauge (for five-axis object adjustment)	1pc
13. Workholder for snap gauge measurement	1pc
14. Measuring jaw for outside micrometer	1pair
15. Workholder and its accessories for micrometer measurement	1set
16. Paralleled probe for outside micrometer measurement	1pair
17. Workholder and probe for dial test indicators	1set
18. Foot pedal board for sampling	1pc
19. Electronic moistureproof cabinet	1pc
20. Summer or winter laboratory uniform	1 of each