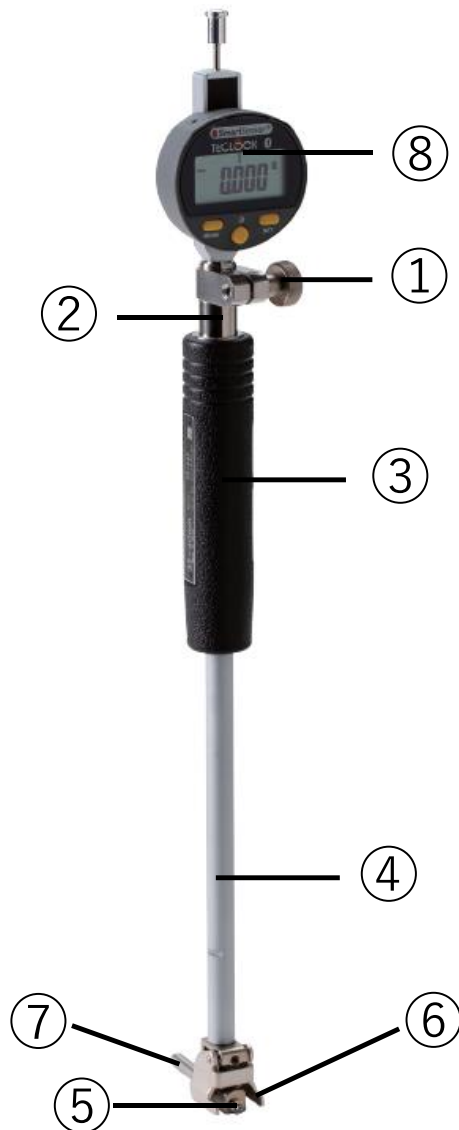


Operation Manual

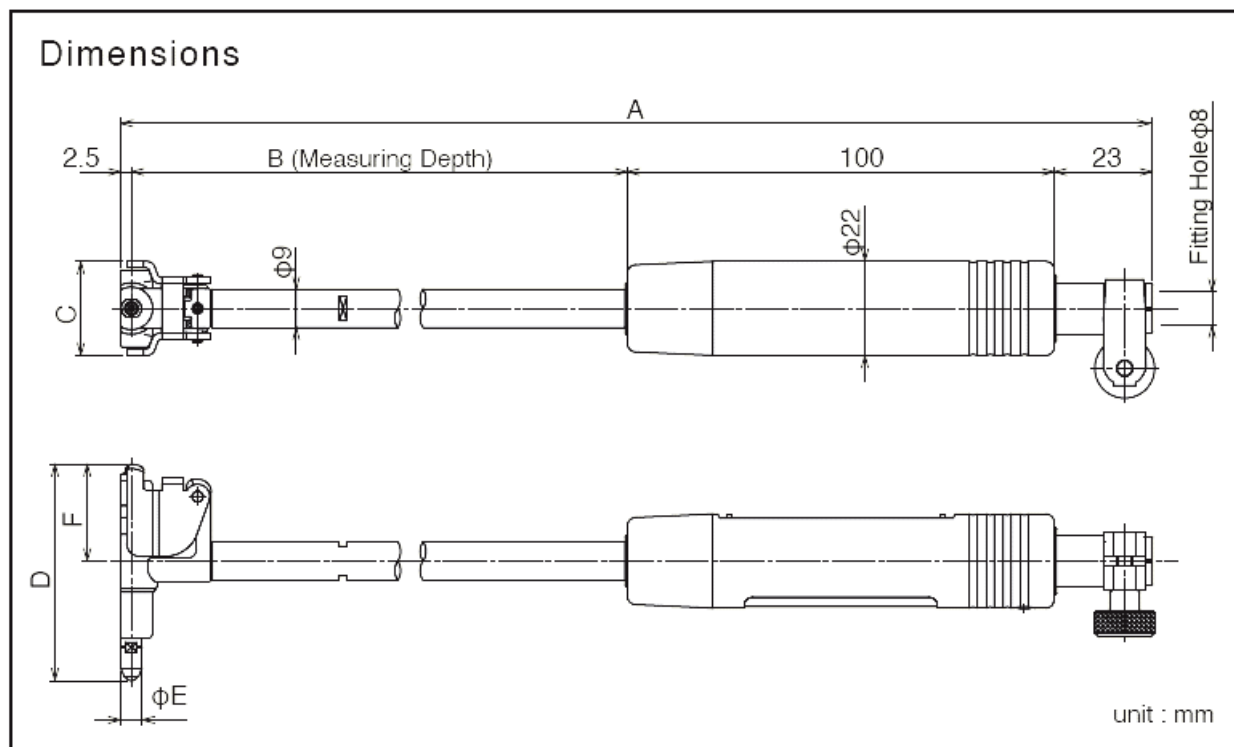
Bluetooth Digital Bore Gauge

Model : SSCD Series for shallow hole



No.	Parts Name
①	Clamp screw
②	Indicator holder
③	Grip
④	Sleeve
⑤	Stylus(Movable side)
⑥	Guide
⑦	Replacing rod(Anvil)
⑧	Indicator(SSI-250)

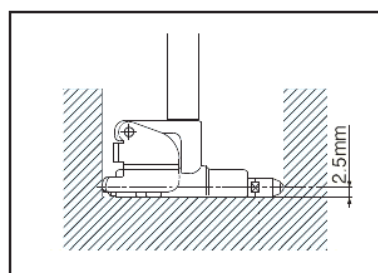
1.Description



Dimension Table

Model	A	B	C	D	E	F
SSCD-35F	275.5	150	10.6	15.7	5	10
SSCD-60F	275.5	150	18	35.7	5	14.3
SSCD-150F	275.5	150	22	50.7	5	22.7
SSCD-35FS	175.5	50	10.6	15.7	5	10
SSCD-60FS	175.5	50	18	35.7	5	14.3
SSCD-150FS	175.5	50	22	50.7	5	22.7

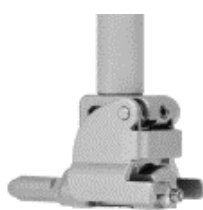
unit : mm



Internal measurement is possible at the position from shallow hole bottom by 2.5mm.



SSCD-35F



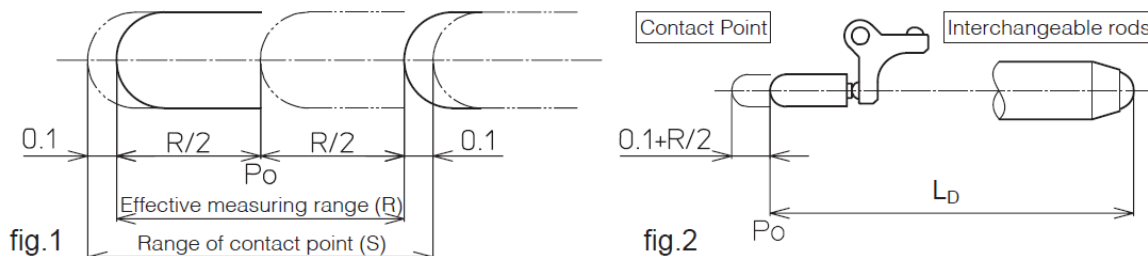
SSCD-60F



SSCD-150F

2. Effective Displacement of Contact Point

- The range of contact point (S) and the effective measuring range (R) are shown below (Figure 1).
- Consider the center of the effective measuring range (Po) the neutral point and the length from the replacement rod to Po the nominal value of the bore gauge (L_D). (The nominal value in Figure 2 is determined by the combination of the replacement rod and replacement washer.)
- It is recommended to set the mean value of the whole measurement tolerance range to L_D. For example, if the measurement dimension is 100±0.05, set 100 to L_D. If the dimension is 100.5^{+0.02/-0.08}, it is ideal to set 104.97 to L_D.



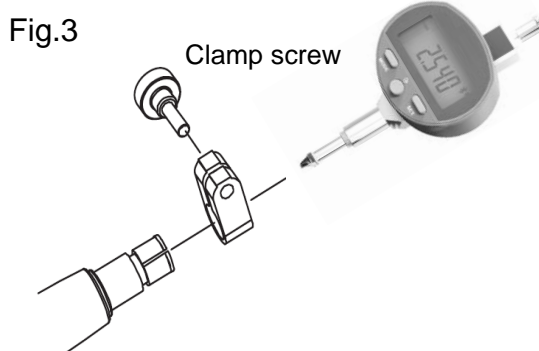
Measurement range (L _D)	Range of contact point (S)	Effective measuring range (R)
15-150 mm	1.4 mm	1.2 mm

3. Usage

The bore gauge is a comparative measurement instrument. Before using this gauge, adjust the zero point by using a ring gauge, micrometer, gauge block, or other tool, which functions as reference gauge.

3-1. Attaching the indicator

- 1) Loosen the dial clamp screw and insert an indicator into the dial holder.
Slowly insert the indicator while monitoring the indicator's reading.
- 2) Insert the indicator at least 0.3 mm. Fasten the dial clamp screw to fix the indicator in place. (Fig.3)



<NOTE>

- Refer to user's manual of indicator clamped (SSI-250).
- Do not remove, insert or rotate the indicator with the dial clamp fastened. This could damage the product or indicator.
- If the dial clamp's indicator insertion hole is deformed by mistake, correct it by inserting an φ8mm stick.

3-2. Dimension settings (modification of measuring range)

Set the measurement dimension by attaching the replacement rod, replacement washer, or sub-anvil suited for the measurement dimension.

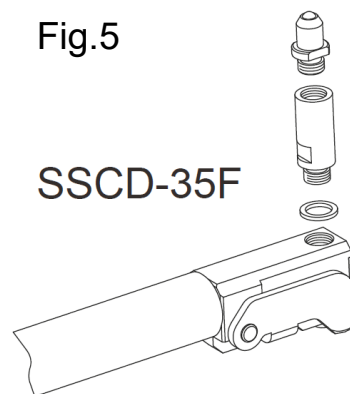
• Setting the dimension by attaching the replacement rod, replacement washer, or sub-anvil.

Select the replacement rod or other part by referring to the nominal value of the measuring range on the anvil plate or conversion chart and “6. Effective Displacement of Contact Point”. Because the method for attaching the replacement rod or other part differs depending on the model, refer to the figure below (Fig.5). If attaching multiple replacement washers and/or sub-anvils, use as few replacement washers and/or sub-anvils as possible.

Tighten the screw part or supporting nut and check for looseness before securing the interchangeable rod.

Fig.5

SSCD-35F



3-3. Setting and Usage for Indicator (SSI-250)

3-3-1) Power on/off operation

(1) Power on Press any button, then Power on.

(2) Power off

① Long press **SET** button (2 sec. or more), then it is standby and display is disappeared.

② Long press **SET** button (4 sec. or more), then 「off」 displayed and Power off.

※) In the case of no using for a long time, do ② operation.



3-3-2) Setting for Bluetooth

① Long press **MODE** button, then Advanced mode. (「Unit」 displayed)

② Short press **MODE** button 5 times, then 「bt CFG」 displayed. (Bluetooth setting mode)

③ Short press **↔** button any times, then select 「HID」 or 「PAIR」 and press **SET** button.

④ Short press **MODE** button any times, then 「bt」 displayed. (Bluetooth setting mode)

⑤ Short press **↔** button, then select 「on」 and press **SET** button. (Bluetooth on mode)

⑥ Short press **MODE** button any times, then 「bt」 displayed. (Bluetooth setting mode)

⑦ Short press **↔** button, then 「rESEt」 displayed and press **SET** button. (Bluetooth Reset)

⑧ Pair connection with PC.

⑨ Display on Bluetooth mode

Pairing mode	Instrument name on PC display
Pair	SY303
HID	S Dial Mini HID

Display status	Operating mode
off	Bluetooth disconnected
blinkinng	Bluetooth advertising
on	Bluetooth connected
rESEt	reset : clear pairing information
MAC	MAC : display the MAC address
SIMPLE	Simple : profile without pairing
PAIR	Pair : paired and secured profile
Hid	HID : virtual keyboard

3-3-3) Setting DIR(Direction) mode. ⇒ In the case of smaller in diameter of work, smaller in measurement data too.

- ① Long press **MODE** button, then Advanced mode.
- ② Short press **MODE** button, 「dir」displayed.
- ③ Short press **↔** button 2 times, then negative displayed, and press **SET** button.

3-3-4) Setting MIN(Minimum) mode ⇒ Held the minimum value of measurement data.

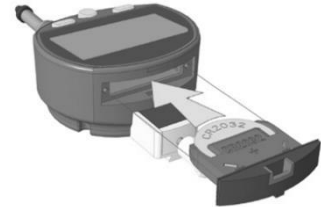
- ① Short press **MODE** button 2 times, then 「Mode」displayed.
- ② Short press **MODE** button any times, then 「Min」displayed.
- ③ Press **SET** button, then MIN mode is fixed.

3-3-5) Setting zero point.

Short press **MODE** button, 「Zero」displayed and reset.

3-3-6) Replacing the battery

Battery type : CR2032



3-4. Zero adjustment

The reference gauge is necessary for zero adjustment. This section describes a typical zero adjustment procedure.

•Zero adjustment using the ring gauge

To periodically measure workpieces that have the same specifications for a long time (such as when inspecting mass-produced products), it is convenient to have a master ring for zero adjustment. The procedure for this adjustment is the same as the actual measurement method. Insert the bore gauge into the master ring, vertically or horizontally swing the bore gauge, and set "zero reset" to the point where the indicator mounted reads the minimum value.

•Zero adjustment using the outside micrometer.

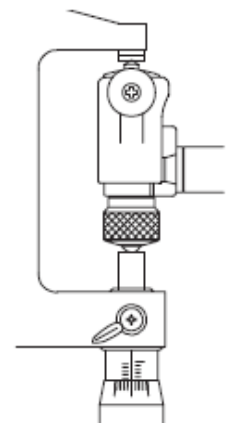
Place the micrometer onto the stand so that the head side (spindle side) faces downward. Fix it in the vertical position and open the necessary length.

Insert the bore gauge between the two measuring faces of the micrometer and set the zero point of the indicator to the point where the indicator reads the maximum value. Some skill is required for this operation because the centripetal force by the guide cannot be used during zero adjustment using the micrometer.

•Be sure to use the wrench that comes with the product to remove or attach the replacement rod or micrometer head (except for models where the replacement rod is fixed in place using supporting nuts).

•For zero adjustment using the outside micrometer, be sure to keep the micrometer in the vertical position and hold it so the spindle side faces downward. Perform this work without clamping the micrometer spindle.


•Always perform zero adjustment after setting the measurement dimension and before starting measurement. Even when performing measurement processes in series, perform zero adjustment before each measurement process whenever possible.

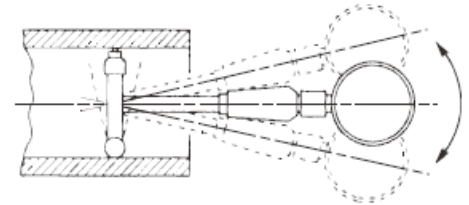


3-5. Measurement

Measurement can be started once the indicator is attached, the measurement dimension is set, and zero adjustment is completed. The bore gauge can measure not only the inside diameter of a cylinder but also the distance between two parallel planes. Some skill is required because the centripetal force by the guide cannot be used, as when performing zero adjustment using outside micrometer or in the case of a model without a guide.

Measurement procedure

- 1) Insert the measurement target into the bore gauge.
- 2) Short press **SET** button of indicator, then it is "Zero reset".
- 3) Vertically or horizontally swing the bore gauge.
- 4) It is displayed the minimum value held. _
- 5) Short press  button of indicator, then the measurement data can be sent to PC by Bluetooth.



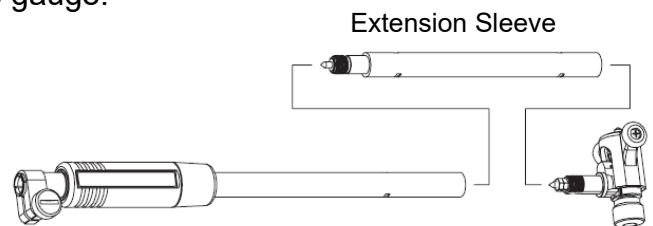
Do not insert the bore gauge from the replacement rod side. Always insert it from the contact point/guide side and insert the replacement rod side while pushing the guide against the measurement target.

4. About Extension Sleeve (Optional Accessory)

The measuring depth can be extended using the extension sleeve to measure a deep hole that cannot be measured with the standard bore gauge.

Extension sleeve attachment procedure

- 1) Fix the outer sleeve to the extension sleeve by using the wrench that comes with the product and remove the head by rotating it counterclockwise.



- 2) Screw the extension sleeve in the outer sleeve.

- 3) Screw the head into the extension sleeve.

- The user's posture might adversely affect the accuracy when the extension sleeve is used. It is recommended to keep the same posture as that when you adjusted the zero point.
- Fasten the head to the extension sleeve slowly and firmly so that the internal shafts are coupled.
- Tighten the screw part so that it will not loosen. If it is not tightly fixed, a breakage, inaccuracy, malfunction, or part drop might occur causing an injury.
- Do not relay multiple extension sleeves.

Extension Sleeves

Length (mm)	SSCD-35 SSCD35F~ SSCD60F	SSCD-60~ SSCD-160	SSCD-250~ SSCD-400
125	ZJ-400	ZJ-403	ZJ-408
250	ZJ-401	ZJ-404	ZJ-409
500	ZJ-402	ZJ-405	ZJ-410
750	-	ZJ-406	ZJ-411
1000	-	ZJ-407	ZJ-412
Extension sleeve dia. (mm)	φ8.7	φ12	φ15
Spanner	ZZ-018	ZZ-019	

5. Maintenance, Checking, Servicing, and Repairing

- Wipe off outside stains with a soft dry cloth or cloth soaked with neutral detergent or alcohol. Do not use other organic solvents (such as thinner or benzene) for resin parts.
- If the gauge is not to be used for a long time, clean it, apply an anti-corrosive treatment, and then store it in a place without condensation.
- Before using the gauge after a long time, check the accuracy and operation of the bore gauge and indicator.
- The performance of this product largely relies on the usage and storage conditions. It is recommended to stipulate an inspection period in your internal standards or another document considering the usage frequency, environment, storage method, and other elements, and periodically inspect the product.
- Teclock does not guarantee the performance, if a third party repairs the product.

6.Specification

Model	Resolution (mm)	Measuring Range(mm)	Effective Measuring Range(mm)	Indication Error(μm)	Repeat-ability (μm)	Measuring Force(N)	Guide Support Force(N)	Number of Rods	Weight (g)
SSCD-35F	0.001	15~35	1.2	8	3	4.9 or less	6 or less	11	255
SSCD-60F	0.001	35~60	1.2	8	3	4.9 or less	6 or less	6	275
SSCD-150F	0.001	50~150	1.2	8	3	5.9 or less	10 or less	11	285
SSCD-35FS	0.001	15~35	1.2	8	3	4.9 or less	6 or less	11	215
SSCD-60FS	0.001	35~60	1.2	8	3	4.9 or less	6 or less	6	235
SSCD-150FS	0.001	50~150	1.2	8	3	5.9 or less	10 or less	11	245

7. Interchangeable rods(anvils), Washers and Extension rods (sub anvils)

Nominal number and nominal measuring length (NML) of interchangeable rods, washers and extension rods are shown in the below table. In case to order the above part, please refer to the code No. in the following table.

Model	Part	Extension rods (sub anvils)	interchangeable rods(anvils)											Washers							
			No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	0.5	1	2	3				
CD-35F	NML		15	16	17	18	19	20	21	22	23	24	25	ZJ-344							
	code No.		ZJ-319	ZJ-320	ZJ-321	ZJ-322	ZJ-323	ZJ-324	ZJ-325	ZJ-326	ZJ-327	ZJ-328	ZJ-329								
CD-35FS	NML	10mm	(25)	26	27	28	29	30	31	32	33	34	35					ZJ-344			
	code No.	ZJ-341	(ZJ-319)	ZJ-320	ZJ-321	ZJ-322	ZJ-323	ZJ-324	ZJ-325	ZJ-326	ZJ-327	ZJ-328	ZJ-329								
CD-60F	NML		35	40	45	50	55	60						ZJ-344							
	code No.		ZJ-330	ZJ-331	ZJ-332	ZJ-333	ZJ-334	ZJ-335													
CD-150F	NML		50	55	60	65	70	75	80	85	90	95	100					ZJ-344	ZJ-345	ZJ-346	ZJ-347
	code No.		ZJ-330	ZJ-331	ZJ-332	ZJ-333	ZJ-334	ZJ-335	ZJ-336	ZJ-337	ZJ-338	ZJ-339	ZJ-340								
CD-150FS	NML	50mm	(100)	105	110	115	120	125	130	135	140	145	150	ZJ-344	ZJ-345	ZJ-346	ZJ-347				
	code No.	ZJ-342	(ZJ-330)	ZJ-331	ZJ-332	ZJ-333	ZJ-334	ZJ-335	ZJ-336	ZJ-337	ZJ-338	ZJ-339	ZJ-340								

CERTIFICATE OF CALIBRATION

We hereby certify that this product has been calibrated and found to be in accordance with the applicable NATIONAL STANDARDS and TECLOCK STANDARDS, Equipment used in this calibration has traceable accuracy to the NATIONAL LENGTH and FORCE STANDARD.

CAUTION

- Be sure to conduct a routine check for this product according to the purpose of use before use. This product is precision instrument, periodically considering frequency of use, environmental conditions and method of use. It is not guaranteed for the performance of this product, which has been repaired or disassembled by other than TECLOCK.
- Use the instrument under the temperature of 0 to 40°C , and the relative humidity of 30 to 70%. (Storage temperature: -10 to 50°C)
- Avoid using the instrument at a site with a significant temperature fluctuation. Condensation might adversely affect the performance.
- Use the instrument at sites with as little dust, oil, and oil mist as possible.
- Do not use the instrument under direct sunlight.
- Do not strike the instrument or allow it to be struck.
- Perform sufficient thermal stabilization of the instrument, a master gauge and an object to be measured before starting measurement. Use the instrument at a site which is subject to as little thermal fluctuation as possible.
- Make sure that the head and outer sleeve are securely fastened before use.
- Do not use the instrument while holding the outer sleeve. If periodic calibration or precision measurement is required, wear thick gloves to minimize your body temperature's influence on the reading.
- Do not use or store the instrument under direct sunlight, or in an excessively hot or cold environment.
- After use, clean the interchangeable rod/washer, etc., apply a coat of anti-corrosive oil to them.
- Use only the supplied interchangeable rod/washer, sub-anvils, and other accessories. Do not use them with other instruments.
- Avoid abrupt operation of the contact point or guide. Be sure to use the instrument within the specified measuring range.
- If this product is dropped by mistake, check the accuracy and operation.
- The goods, technologies or software described herein may be subject to National or International, or Japanese Export Controls. To export directly or indirectly such matter without due approval from the appropriate authorities may therefore be a breach of export control regulations and the law.

For appearance and other design improvement, this products subject to change without advance notice.

TECLOCK Corporation, TECLOCK SmartSolutions Corporation
<http://www.teclock.co.jp>

HEAD OFFICE

2-10-3 MARUTA-CHO, OKAYA-SHI, NAGANO-KEN 394-0042
PHONE:81-266-22-4912, FACSIMILE:81-266-22-4914
E-mail:teclock@teclock.co.jp