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ISF-U SERIES
UNIVERSAL PUSH AND PULL TESTING MACHINES
OPERATION MANUAL

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VIDEO OF PRODUCTS.

VIDEO

V0

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## CHARACTETISTICS

1.800X 480 pixel TFT colorful screen with touch functions, peak/ real-timevalue/force curve display at the same time.

2.Different test mode for different test requirements: constant force mode, constantdisplacement mode, constant deformation mode, constant force fatigue test mode.constant displacement fatigue test mode, constantforce multipoint test mode.constant displacement multipoint test mode.

3.Save 10 test value and 3 groups test curve, print test report through printerinside.

4. Four units option: N/kgf/lbf/ozf, automatic exchange.

5.Automatic zero calibration for displacement.

6. Automatically back to starting location after finishing test.

7. Two speed mode, high speed approach and low speed collect.

8.Mechanical limit, auto-stop for overload, scraming function.

9. High precision ball screw, better drive efficiency and high accurate displacement.

10.Servo drive system, low noise and good stabilization.

11.High accuracy sensor, promise test precision.

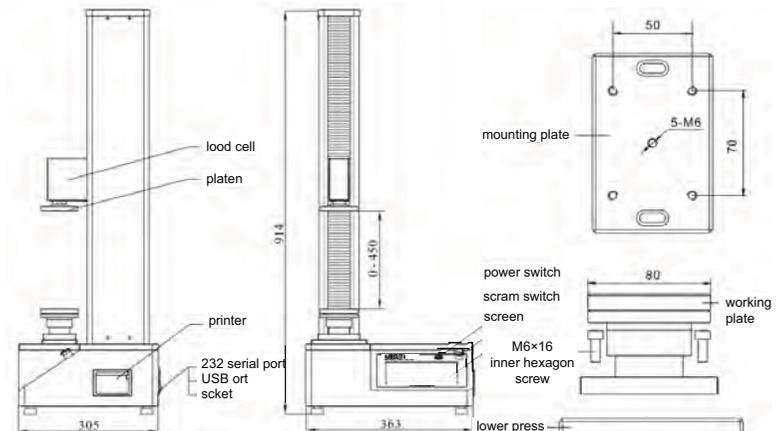12.Automatic shutdown mode without any operation, time is set freely.

WORK ENVIRONMENT

1.Work temperature: 20ºC±10ºC

2.Relative humidity:35%RH~65%RH.

3.No shock and corrosive material around.

FUNCTION
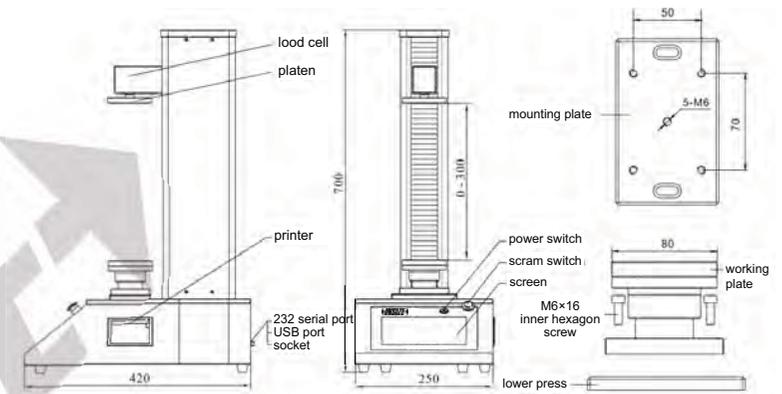
CODE:ISF-U055

**CODE:ISF-U101/U202**

INTRODUCTION

A.Quick start guide

|	
⏻	Power switch (Note: this key is the entity key.)
TEST PLAN	Select the test mode, and test parameters.
TEST	Under the initial work screen, press this key to start the test.
UP	After setting the speed, it can run up.
STOP	Under the initial working interface, press this key to stop testing and running.
DOWN	After setting the speed, it can run down.
D-SAVE	The current force value and displacement are stored on the main interface.
F-VIEW	View 10 groups ofdata in storage
CURVE	View the storage curve.
SYSTEM	When the initial working interface is used, the system parameters of the instrument are set.
ZERO	Under the initial working interface, the force value and displacement are zero.
BACK	After the test is over, return to the starting position.
ORIGIN	Reset the origin ofthe test.

B. Functions details

1.Work interface of initialization
    On:press "⏻" button for power on. The tester enter self-inspectionand show INSIZE and model on screen, then enter work interface ofinitialization. (picture below)
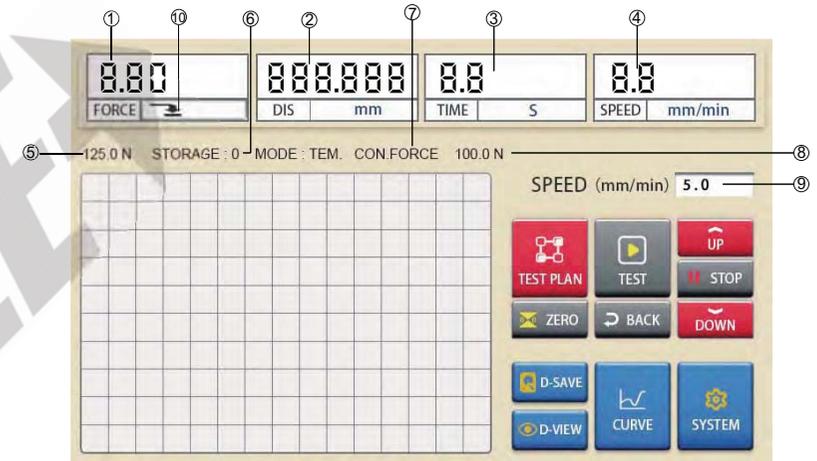
① FORCE: current force value
    Touch "FORCE', zero current force.

② DIS.:current displacement value
    Touch displacement, zero current displacement.

③ TIME: measurement time.

④ SPEED: current speed.

⑤ STEP VALUE: when the tester start to draw, iftest value exceeds stepvalue, it will switch to next step.

⑥ STORAGE:show current storage place

⑦ MODE: show current test mode.

⑧ Current mode setting parameters.

⑨ Freely set displacement speed.

⑩ Four units option:N/kgf/lbf/ozf,automatic exchange.

2.Interface ofparameters setting
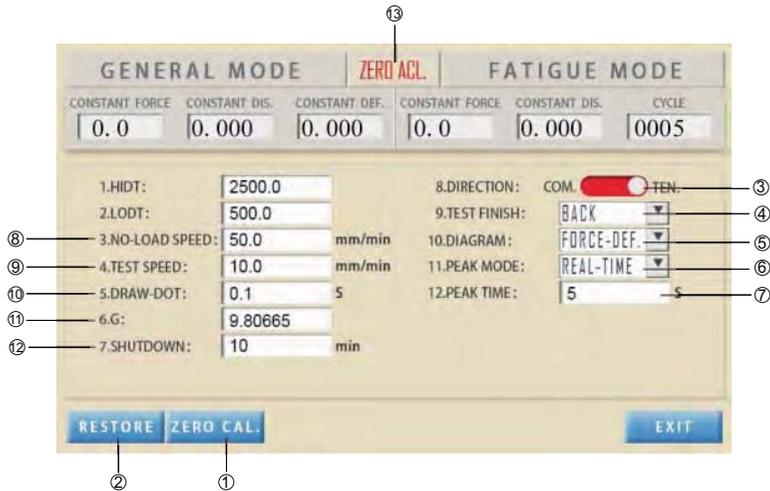
Under work interface ofinitialization, pressing" TEST PLAN" button enter interface of parameters setting for choosing test mode.

Manual mode, constant force mode, constant displacement mode,constant deformationmode, constant force fatigue test mode, constant displacement fatigue testmode.zero calibration.

Constant force mode: automatic operation, test work height under pre-set force.

Constant displacement mode: automatic operation, test spring force under pre-set work height.

Constant deformation mode: automatic operation, test spring force under pre-set deformation.Constant force fatigue test mode: automatic operation, repeatedly testspring work height under pre-set force and record former 10 groups data.

Constant displacement fatigue test mode: automatic operation.repeatedly test spring force under pre-set work height and record former 10 groups data.

① ZERO CAL.:adjust displacement zero.

② RESTORE:eliminate current mode.

③ DIRECTION: determine direction offorce, is it pulling or pressingThe drawing fixture is pulled forward.

④ TEST FINISH:whether return after finishing test.
   BACK:after finishing test,return to work interface ofinitialization.sensor house return to original location automatically.
   NOT BACK: after finishing test, return to work interface ofinitialization, sensor house remain unchanged.

⑤ DIAGRAM :abscissa data setting ofdisplay curve.
   FORCE-TIME:ordinate is force,abscissais time.
   FORCE- DEF.:ordinate is force,abscissa is deformation.

⑥ PEAK MODE: can be selected in real-time tracking, peak retention, automatic peak three modes.

⑦ PEAK TIME: the lifting time of the automatic peak mode and the peak selection mode.

⑧ NO-LOAD SPEED:speed without load.

⑨ TEST SPEED:speed oftest.

⑩ DRAW-DOT: 0.1~0.9 second setting

⑪ G.:when testing gravitational aceleratiion.

⑫ SHUTDOWN :shutdown time setting.

⑬ Current mode.

1) Test mode of zero calibration (picture below)

ZERO CAL.:adjust displacement zero

2) In general mode constant force test mode (picture below)

① OCONSTANTFORCE : when the determined force value is greater
   than 0, the test mode is in the force mode.
   Stop moving after reaching to pre-set force.

3) In general mode constant displacement test mode(picture below)

① CONSTANT DIS.:when the location shift value is greater
   than 0, the test mode is in the positioning mode.
   Stop moving after reaching to pre-set displacement.

4) In general mode constant deformation mode (Picture below)

① CONSTANT DEF : when the deformation value is greater than 0,
   the test mode is in the definite deformation pattern.
   Stop moving after reaching to pre-set displacement.

5) In general mode constant force fatigue test mode (picture below)

① CONSTANT FORCE : when the determined force value is greater
   than 0, the test mode is in the force fatigue mode.
   Force setting: stop moving after reaching to pre-set force.

② CYCLE :combined with the measured force value,the fixed force
   fatigue testis completed.

6) In general mode constant displacement fatigue test mode
(picture below)

① CONSTANT DIS.:when the location shift value is greater than 0,
the test mode is in the position shift fatigue mode.
Stop moving after reaching to pre-set displacement.

② CYCLE : coordinate with the positioning shift value to complete
the positioning fatigue test.

3. Test interface

Under work interface ofinitialization, pressing "SYSTEM" button to enter
the system setting interface.(picture below)

① BRIGHTNESS: Adjust the brightness ofthe screen.

② LANGUAGE: Switch in both Chinese and English.

③ TESTLOAD: Set the percentage ofthe force value overload.

4. Test interface

Under work interface ofinitialization, pressing "TEST" button make the
instrument enter test interface according to select mode.(picture below)
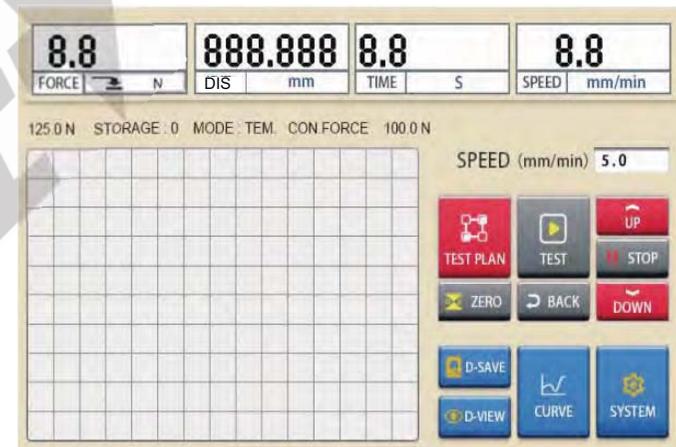
(Note: Under test interface, pressing "STOP" button make the instrument
stop testing amd enter curve storage interface)

5. Interface of curve storage

⑬   ⑭   ⑮

⑫ FORCE ➤ NN   DIS mm   TIME S   CURVE: 1 2 3

8.8 | 888.888 | 8.8

125.0 N   STORAGE : 0   MODE : TEM.   CON.FORCE   100.0 N

⑥
⑦
⑩
⑧
⑨
④
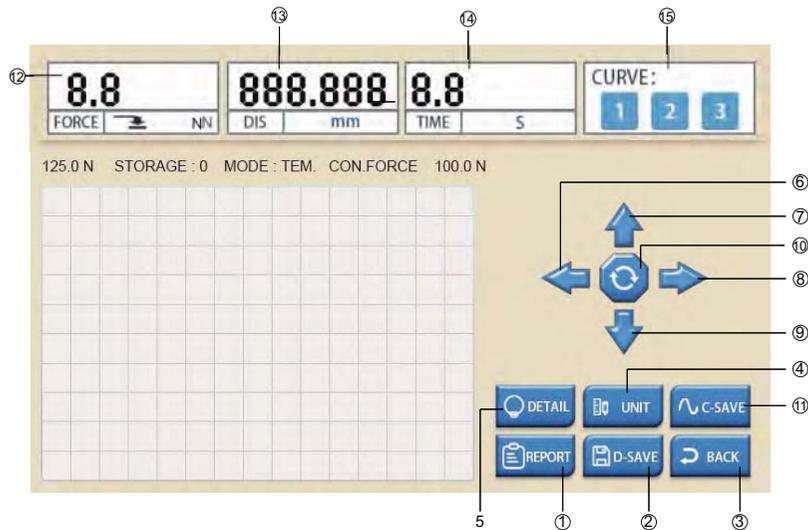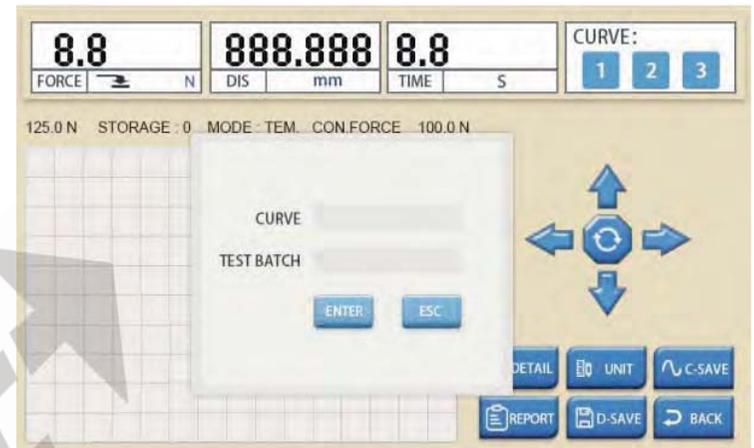⑤ DETAIL   UNIT   C-SAVE ⑪
REPORT   D-SAVE   BACK

5   ①   ②   ③

① REPORT: press the key to view the report ofthe test and enter the report
    to view the page.

② D-SAVE: press this key, store the peak and displacement data to the
    corresponding storage bits.

③ BACK: press this key to return the initial working interface

④ UNIT: press this key, and automatically switch the ozf four units atthe nline
    kgfin.

⑤ DETAIL:press the key, the input line details interface, and view thedata
    from each point.

⑥ ← : Press this button and you can move the curve left.

⑦ ↑ : Press this key to enlarge the curve.

⑧ → : Press this button and you can move the curve right.

⑨ ↓ : Press this button to narrow down the curve.

⑩ ⊙ : Press the key and return to the start test curve.

⑪ Store the curve key: press the key to appear the following interface.

○

8.8 | 888.888 | 8.8

FORCE ➤ N   DIS mm   TIME S   CURVE: 1 2 3

125.0 N   STORAGE : 0   MODE : TEM.   CON.FORCE   100.0 N

CURVE

TEST BATCH

ENTER   ESC

DETAIL   UNIT   C-SAVE
REPORT   D-SAVE   BACK

(Note: enter the corresponding number in the curve bit and the test
batchand then press the confirmation key to store If the curve is in the
corresponding curve position, if the operation is cancelled by cancellation,
returnReturn tothe curve storage interface)

⑫ FORCE : the maximum force value in the test process.

⑬ DIS : the displacement after the test is finished

⑭ TIME: test total time.

⑮ CURVE : the specified curve is stored in the corresponding curve.

6. Curve detail interface

7. Interface of view
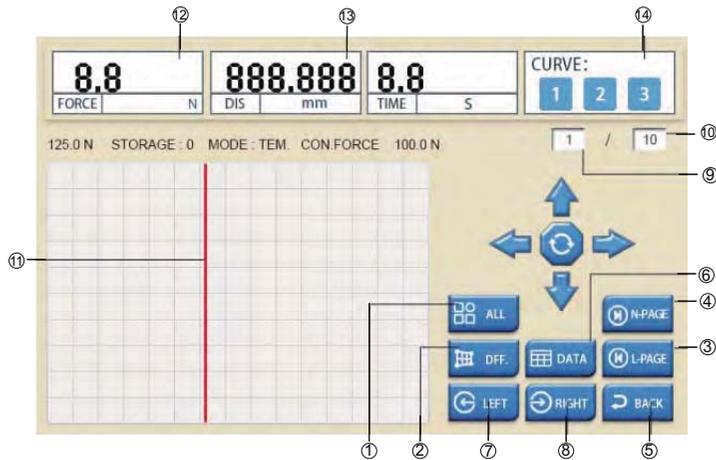
① ALL:
    If the curve bit is 0, press this key to return the curve storage interface.
    If the curve is (1, 2, 3) press the key, and return to view the interface.

② DFF:Press the key shift data to transform the data.

③ L-PAGE:Press this button and return to the top.

④ N-PAGE:Press this button and the curve returns to the next screen.

⑤ BACK:Return to the initial working interface.

⑥ DATA:Press this key to enter the curve data interface

⑦ LEFT:Press this button and move the cursor to the left

⑧ RIGHT:Press this button and move the cursor line to the right.

⑨ This curve has several screens.

⑩ The current screen position.

⑪ CURSOR LINE: point to the current curve view point.

⑫ FORCE:The force value on the current curve point.

⑬ DIS:The displacement ofthe current curve.

⑭ CURVE:The storage position ofthe current curve.
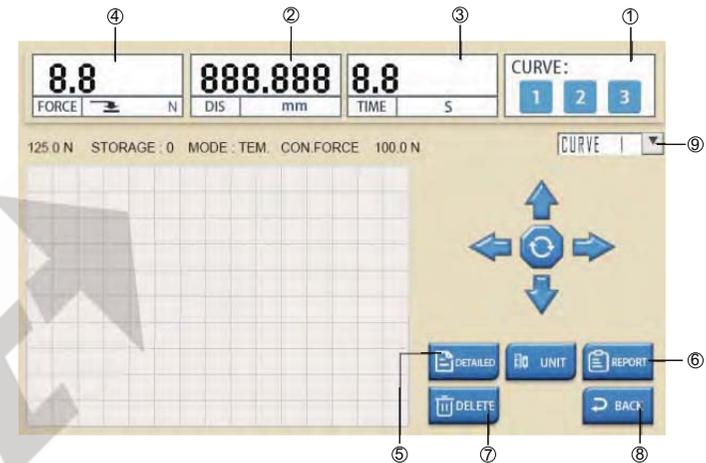
Click the "D-VIEW" key to see the page from the main page

① CURVE:
    The curve is dark, indicating that there is a curve stored in this bit.The
    horizontal font is the same, indicating that the uncurable is storedin this bit.

② DIS: The total displacement ofthe current memory curve.

③ TIME: The total time ofthe current memory curve.

④ FORCE: The maximum value ofthe current storage test curve.

⑤ DETAILED: Press this key to enter the detailed interface ofthe curve.

⑥ REPORT: Press this key to test the report interface.

⑦ DELETE: Press this key to remove the current curve.

⑧ BACK: Press this key to return the initial working interface.

⑨ Select the curve to display.

8. Data viewing interface

① DEL. :Touch the group that you need to delete and press the key, delete the collection "➔" the corresponding group stores the data.

② DEL. ALL:Press this key to remove all the group's storage data.

③ PRINT: Press this key to print all the stored data as shown below.

④ EXIT:Press this key to return to the initial working interface.

ISF-U055 TEST REPORT

COMPANY:

NUMBER	DIS	FORCE (N)
0	42.466	5.00
1	30.000	7.12
2	74.020	9.99
3	74.020	9.99
4	74.028	10.00
5	74.046	10.00
6	74.039	10.00
7	74.034	10.00
8	74.054	10.00
9	42.652	5.03

9. Test report interface

① EXIT:
Ifthe curve is 0it indicates the curve data that has just been tested.
Press this key to return to the curve storage screen.
If the curve is (1, 2, 3,) press the key, and return to view the interface.

② PRINT: Press this key to print all the stored data as shown below.

③ ⟳ : Press this key to return to the initial working interface.

ISF-U055 TEST REPORT

COMPANY:
DATE:20230629
CURVE: 0
TEST BATCH:00000011
TEST DIRECTION:COMPRESSION
TEST MODE:CONSTONT DISPLACEMENT
NO-LOAD SPEED:051.0mm/min
TEST SPEED:0.500 mm/min
UMIT:N
UPPER LIMIT:8.00
LOWER LIMIT:4.00
MAX:7.11
HEIGHT:30.000 mm
STIFFNESS:0.300 N/mm

C. Operation sample

1. boot
Use the power cord to connect the power source, and the needle rotation opens the urgent stop switch, press the "   " button to turn on, and enter the initial working interface.

2. Preparation before testing
① Press the " TEST PLAN" key, enter the parameter Settings interface, and set to the test mode as the "ZERO ACL.", press the " EXIT " key to exit.

GENERAL MODE		ZERO ACL.		FATIGUE MODE	
CONSTANT FORCE	CONSTANT DIS.	CONSTANT DEF.	CONSTANT FORCE	CONSTANT DIS.	CYCLE
0. 0	0. 000	0. 000	0. 0	0. 000	0005

1.HIDT:	2500.0		8.DIRECTION:	COM.⚪TEN.
2.LODT:	500.0		9.TEST FINISH:	BACK ▼
3.NO-LOAD SPEED:	50.0	mm/min	10.DIAGRAM:	FORCE-DEF. ▼
4.TEST SPEED:	10.0	mm/min	11.PEAK MODE:	REAL-TIME ▼
5.DRAW-DOT:	0.1	S	12.PEAK TIME:	5 S
6.G:	9.80665			
7.SHUTDOWN:	10	min		

RESTORE ZERO CAL.   EXIT

② Press " TEST " key，The test machine begins to make zero correction, and the calibration process needs 2-3 minutes.

③ Complete zero correction (The phenomenon is the change of displacement,DIS:50mm±1mm，Screen display zero correction completion) .Adjust theposition of the pressure plate to test the spring. The test of the pressure springis going up and down, so the zero position correction of the tester is the zeroposition correction of the pressure disk. The test of the spring drawing isdone in the upper and down.

3. Pressure spring test instance
Sample: the free height of a press is 17mm, the diameter of the diameter is 12.5mm. the steel wire is 1.7mm, and the circle is seven circles.
Test requirements:

① The test pressure spring is the height value of the compression after the 10N pressure.
② When the height of the test pressure spring is compressed to 15mm, its elasticity is produced.
③ The load pressure value of the test pressure force is compressed by 5mm.
④ The test pressure spring is highly valued after the 8N pressure and the repeated compression test of 5 repeated tests.
⑤ The height of the test pressure spring is compressed to 15mm and the elasticityvalue is compressed by five times.

1) Test requirements operation example:

Place the pressure spring in the center of the pressure plate.

① Press the "TEST PLAN' key, enter the test parameter to set the interface, enter the data in the normal mode, and switch the test mode to "CON.FORCE" click "EXIT" key to exit after completion.

GENERAL MODE		CON. FORCE		FATIGUE MODE	
CONSTANT FORCE	CONSTANT DIS.	CONSTANT DEF.	CONSTANT FORCE	CONSTANT DIS	CYCLE
10. 0	0. 000	0. 000	0. 0	0. 000	0005

1.HIDT:	2500.0		8.DIRECTION:	COM.🟩TEN.
2.LODT:	500.0		9.TEST FINISH:	BACK ▼
3.NO-LOAD SPEED:	50.0	mm/min	10.DIAGRAM:	FORCE-DEF. ▼
4.TEST SPEED:	10.0	mm/min	11.PEAK MODE:	REAL-TIME ▼
5.DRAW-DOT:	0.1	S	12.PEAK TIME:	5 S
6.G:	9.80665			
7.SHUTDOWN:	10	min		

RESTORE ZERO CAL.   EXIT

② Press "TEST" key，The tester enters the test interface and completes the test automatically.
③ After the test is complete, the test machine automatically switches to the curvestorage interface. The "DISdisplayed at this time is the height of the testrequirements.
④ Under the curve storage interface, the results of this test can be exported and saved.

2) Test requirements operation example:

 Place the pressure spring in the center of the pressure plate.

① Press the " TEST PLAN " key, enter the test parameter to set the interface. Enter the data in the normal mode, and switch the test mode to "CON. DIS." Click "EXIT" key to exit after completion.

② Press "TEST" key, Test machine enters the test interface and completes the test automatically;

③ After the test is complete, the test machine automatically switches to the curvestorage interface. The "FORCE" is the data that is displayed for the testrequirements.

④ Under the curve storage interface, the results of this test can be exported and saved

3) Test requirements operation example:

 Place the pressure spring in the center ofthe pressure plate.

① Press the " TEST PLAN " key, enter the test parameter to set the interface. Enter the data in the normal mode, and switch the test mode to "CON. DEF." Click "EXIT" key to exit after completion.

② Press the "TEST" key to start testing, testing machine enters the test interface and automatically completes the test.

③ After the test is complete, the test machine automatically switches to the curve storage interface. The data that "DIS" displays is the height of the test requirements;

④ According to the" REPORT"key, you can view the details of the testand choose to "PRINT" the number of reports.

⑤ Press the "RESTORE" key, and the results of the test can be exported and saved under the curve storage interface.
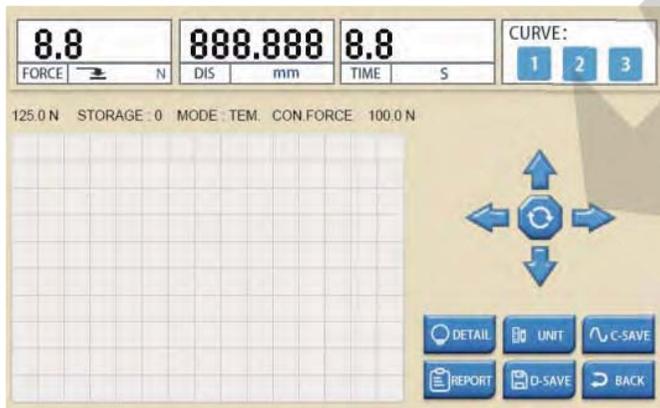
4) Test requirements operation example:

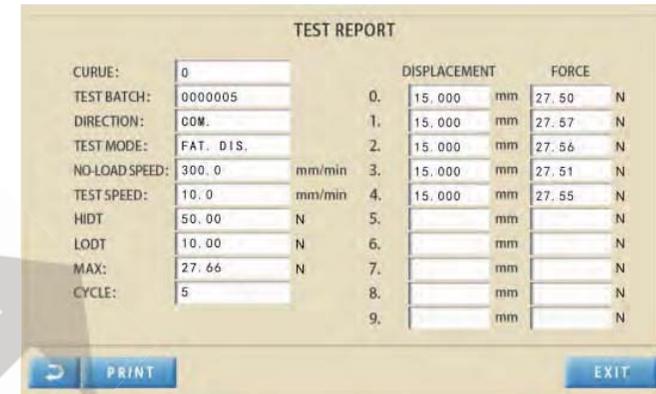Place the pressure spring in the center of the pressure plate.

① Press the "TEST PLAN" key, enter the test parameter to set the interface.enter the data in the normal mode, and switch the test mode to "FAT. DIS." click "EXIT" key to exit after completion.

GENERAL MODE	FAT. DIS.	FATIGUE MODE			
CONSTANT FORCE	CONSTANT DIS.	CONSTANT DEF.	CONSTANT FORCE	CONSTANT DIS.	CYCLE
0.0	0.000	0.000	0.0	10.000	0005

1.HIDT:	2500.0		8.DIRECTION:	COM. ⬤ TEN.
2.LODT:	500.0		9.TEST FINISH:	BACK ▼
3.NO-LOAD SPEED:	50.0	mm/min	10.DIAGRAM:	FORCE-DEF. ▼
4.TEST SPEED:	10.0	mm/min	11.PEAK MODE:	REAL-TIME ▼
5.DRAW-DOT:	0.1	S	12.PEAK TIME:	5	S
6.G:	9.80665			
7.SHUTDOWN:	10	min		

RESTORE | ZERO CAL. | EXIT

② Press "TEST" key, Test machine enters the test interface and completes the test automatically;

8.8	888.888	8.8	CURVE:
FORCE ⮒ N	DIS mm	TIME S	1 2 3

125.0 N   STORAGE : 0   MODE : TEM.   CON.FORCE   100.0 N

DETAIL | UNIT | C-SAVE
REPORT | D-SAVE | BACK

③ After the test is complete, the test machine automatically switches to the curvestorage interface. According to the "REPORT" key, you can view the detailsofthe test and choose to "PRINT" the number of reports.

TEST REPORT

					DISPLACEMENT		FORCE	
CURUE:	0							
TEST BATCH:	0000005			0.	15.000	mm	27.50	N
DIRECTION:	COM.			1.	15.000	mm	27.57	N
TEST MODE:	FAT. DIS.			2.	15.000	mm	27.56	N
NO-LOAD SPEED:	300.0	mm/min		3.	15.000	mm	27.51	N
TEST SPEED:	10.0	mm/min		4.	15.000	mm	27.55	N
HIDT:	50.00	N		5.		mm		N
LODT:	10.00	N		6.		mm		N
MAX:	27.66	N		7.		mm		N
CYCLE:	5			8.		mm		N
				9.		mm		N

↩ | PRINT | EXIT

④ Press "↩" key, the return curve storage interface can output and save the results of this test.

4. Test operation

The zero position of the pull and drop hook before the spring test is required, and the zero position can automatically zero and manual to zero.

Automatic zero operation:
Press the force mode to pull the hook to zero;
The rotating hook is the horizontal state, the rise of the hook to the right position, when the upper pull hook is rotated in place, the lower pull hook is in the range ofthe upper pull hook, and keeps the distance of 2-5mm.

Automatic zero operation: the calibration force test mode is zero, by the following:

Click "EXIT" button after completion, and the screen displays the following diagram:
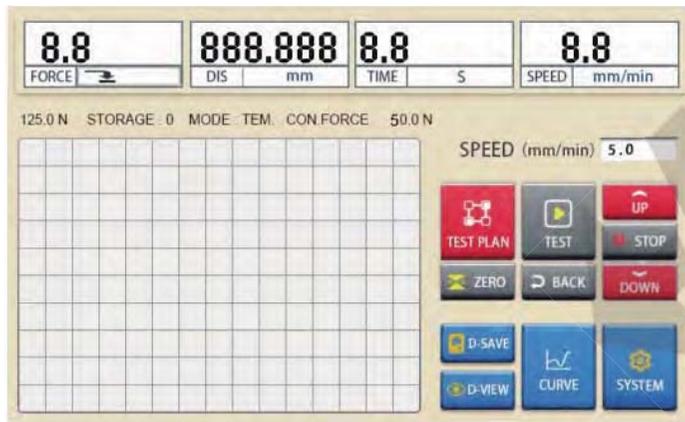
Warning: when the pull hook is zero, the fixed force value is strictly forbidden to set the 5%of the range.
Note: the direction of the test is changed to pull to; the test is turned on to not return; the fixed force value is set by the 5 per cent range of the range (for the ISF-U101 example, which can be set to 50N). Press the "TEST" key, and the testing machine begins to move downward to the two hooks and stops at 50N.

Press the "ZERO" key to clear the data in the "DIS" and complete the hook to zero. The lifting of the hook, the rotating hook leaves the twohooks off, and the normal spring test is performed

MICROPRINTER

1. Panel schematic

front cover   paper opening

button and lamp

rotary wrench
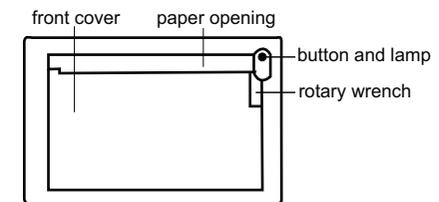
2. Button specification
(1)Button switch operation and indicator lamp
The lamp is always in the bright state after the printer is on the printer. You can't accept data. Normal power,lfkey position paper key.

(2)Self-checking method
Printer power cuts, the lfkeys don't let go, and the printer is plugged in, and the printer prints out ofthe check bar.

3. Paper roll
   (1)Remove the rotary wrench and open the front plate.

   (2)Put the paper in and pull out a piece of paper (more than a bit of tear), and keep the paper in order, and pay attention to the direction of the paper (the paper is pulled out of the paper roll outside the print head).

   (3)Close the board, print the head of the paper shaft and press the paper and then press the paper. Shaft press back printing head.

SAFETY CONSIDATIONS

1. Do not overload the use of instruments, must be tested in the instrument.Otherwise, it will damage the instrument and be more likely to be dangerous.

2. Do not hit the LCD screen or place objects on LCD screens.

3. Do not use the nail, the weapon or the pointed object to press the function button.

4. Do not use instruments in places where water, oil, or other liquids are splashed,and keep the instruments in a cool, dry and unvibrating place.

5. Please do not pull or insert the plug with wet hand, otherwise it can lead to shock.

6. Please use soft cloth to clean the instrument, immerse the dry cloth in the water that has the detergent, and then remove the dust and dirt. Do not use volatilechemicals such as volatile oil, thinner, alcohol, etc.

7. Light and light in the process ofuse and handling.

8. Do not remove, repair or transform the machine by oneself.

9. Please contact the original purchase or company for the fault.

⚠ **WARNING** 1.Please wear protective mask and gloves toprotect you from scattering pieces duringfracture test.

2.Do not use damaged or warped clamps to avoid them off or breaking down to cause hurt.

3.This equipment is used for testing compression and tension ofsprings. Donot force on the direction ofsensor and bending.

4.Do not use the equipment with overload.The equipment has overload protection,and no protection against shock load.

5.When the force show red, it means that the sensor exceeds the capacity and you should stopping operate.