

User Manual

HC Series



Pull Out Tester

<http://www.lonroy.com>

Service hotline: 86-769-83078748



粤制00000749号 2009 F245-44
计量器具型式批准证书

ISO9001: 2008

Introduction

To user:

We appreciate it very much that you choose our product. Please read our manual carefully before you use it. We provide one year quality assurance and the consummation after-sale service. If during the using process, you discover any question, please promptly contact us.

Thanks your trust and the support sincerely!

Special statement:

- This manual is not the requiremnet basis for the buyer.
- This operation manual final explanation power belongs to this company.

1. Summarize :

HC series pull out tester is mainly used for testing anchoring force of bolt, steel bar, expansion bolt and other anchoring parts.

HC series pull out tester is mainly composed of a type 1 manual pump, hydraulic cylinder, intelligent pressure numerical display and high pressure tubing with quick connector. When in use, first connect the type 1 manual pump with the hydraulic cylinder with a quick connector, and then connect the pressure sensor on the type 1 intelligent pressure numerical display manual pump with the sensor connector.

1.1 Performance Feature

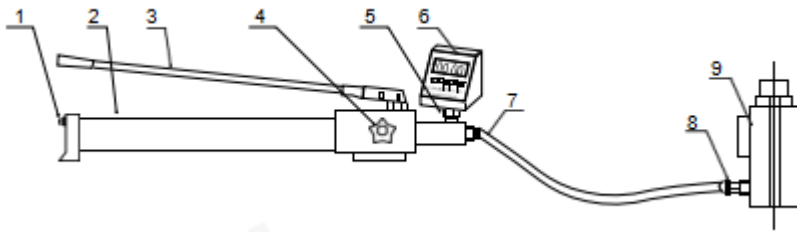
- *.Segment liquid crystal display
- *.Liquid crystal lighting function
- *.Peak holding function
- *.Up to 200 pieces of data can be stored
- *.With overload protection structure, the cylinder will not be damaged when no load exceeds the range, so it can be safely used.
- *.According to the standard: the national standard of the People's Republic of China ("concrete structure reinforcement design code") GB50367-2006

1.2 Main Technical Parameters:

Model	Oil Cylinder Center Hole Diameter	Oil Cylinder Stroke	Range of Measurement	Weight	Resolution Ratio
HC-3	27mm	60mm	0~50KN	7.5Kg	0.01KN
HC-5	27mm	60mm	0~50KN	7.5Kg	
HC-10	27mm	60mm	0~100KN	7.5Kg	
HC-15	34mm	80mm	0~150KN	14Kg	
HC-20	34mm	80mm	0~200KN	14Kg	
HC-30	45mm	80mm	0~300KN	16Kg	
HC-40	60mm	120mm	0~400KN	29Kg	
HC-50	60mm	120mm	0~500KN	29Kg	
HC-100	85mm	150mm	0~1000KN	65Kg	

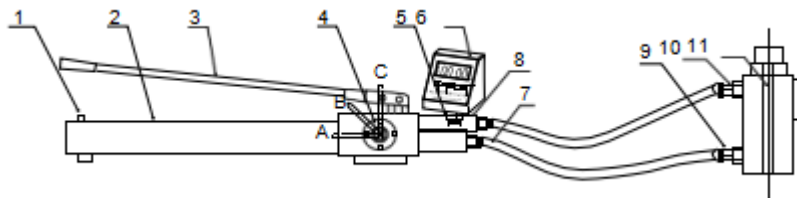
2.Operating Steps:

HC-3~30 Series pull out tester structure diagram is as follows:



Oil filling hole 2. Oil storage cylinder 3. Multi-function pressure handle 4. Unloading valve 5. Pressure sensor 6. Pressure gauge 7. High pressure tubing 8. Quick connection 9. Hydraulic cylinder

HC-40~100 series pull out tester structure diagram is as follows:



1. Oil filling hole 2. oil storage cylinder 3. multi-function pressure handle 4. reversing valve 5. pressure sensor 6. pressure gauge 7. high pressure oil pipe (pressure) 8. oil pipe 9. oil inlet (pressure) 10. oil outlet (pressure) 11. hydraulic cylinder
Reversing valve position: A: pressure B: middle C: pressure relief (anchor relief)

*.The high pressure oil pipe with the sensor is connected to the oil inlet. When the other oil pipe is connected to the oil outlet and pressurized, pull the reversing valve to the pressurized position. When the pressure is relieved, pull the reversing valve to the pressure relief position

2. Operation Steps:

2.1 Check the Oil Quantity

If the piston of the hydraulic cylinder is not fully returned to the cylinder, it should be connected to the type 1 manual pump through the oil pipe first. The 3T~30T bolt puller will turn the unloading valve on the pump body counterclockwise, and the 40T~100T bolt puller will pull the reversing valve to the unloading position, so that the hydraulic oil in the hydraulic cylinder can be discharged back to the oil storage cylinder of the type 1 manual pump. Unscrew the oil filling cap from the tail of the type 1 manual pump and check the oil

quantity. 1/5 space should be left in the oil storage cylinder. If the oil is not enough, N32 wear-resistant hydraulic oil can be added.

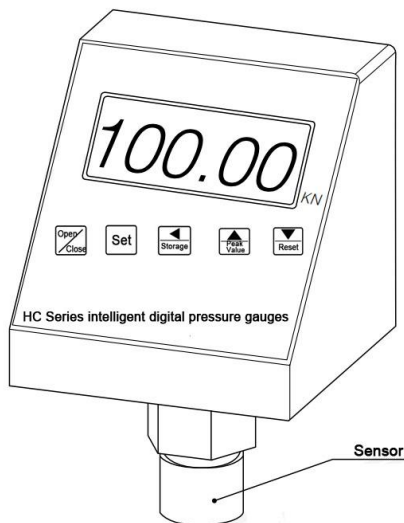
2.2 The Vent

After the hydraulic system is connected, there is often air in the oil storage cylinder, oil pipe and hydraulic cylinder. In order to make the hydraulic system normal, these air must be discharged. Method: loosen the oil filling hole cover so that the air in the oil cylinder can be discharged. Put the type 1 manual pump on a place slightly higher than the hydraulic cylinder, tighten the unloading valve clockwise, press the type 1 manual pump, so that the hydraulic cylinder piston extends to the maximum stroke, and then open the unloading valve, so that the piston retract, successive several times.

3. Intelligent Pressure Numerical Display Parameters

Working principle and application method of intelligent pressure numerical display

HC series intelligent pressure numerical displays are mainly composed of pressure sensors and measurement display circuits connected by data connection. The pressure sensor generates A voltage signal, which is converted into A digital signal by A 20-bit A/D converter. The pressure value is displayed by A liquid crystal display after being processed by A single chip microcomputer. The panel of the intelligent pressure numerical display is shown below



Key Function Description :



: Press this key in the main interface to enter the parameter setting state.



: It has the function of peak value holding in the measurement state, and the function of value increasing in the setting state.



: Store the current measurement and move the number to the right in the set state



: The value reduction function. In the state of measurement, it has the function of zero display.




: Hold this key for about 2 seconds to turn on/off the meter power.

Connect the sensor connector of the intelligent pressure numerical display to the sensor interface of the type 1 manual pump and tighten the fastening ring on the connector

4. Method of Application Intelligent Pressure Numerical Display:

4.1 Method of Application:



Force Measurement:

1. Press () button for 3 seconds, and the device will display the power on screen (as shown in the figure below).


HC-10

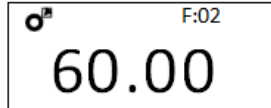
2. After 25 seconds, the instrument automatically jumps to the measured state (as shown in the figure below).

0.12




3. First press the () key to enter the peak measurement state, and then press the () key to clear the display value of the instrument and start pressurizing, the maximum value will be maintained at any time, so that you can easily read. (below)

60.00^P

4. After the measurement is completed, press () to select save, and the instrument will automatically save the measurement result. This instrument can store 200 pieces of data, which is convenient for users to store and protect data more effectively





4.2 Data Query and Deletion:

Press the () key to query the stored data, and view the previous or next data through the () and () keys






Press the button twice more to return to the measured state.

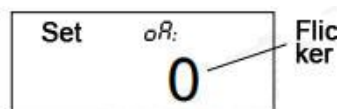


Press the () key twice, press the () key, and the meter will delete all the saved data. The buzzer will sound once and then return to the measurement state.



4.3 Password Entry:

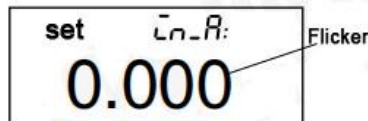
After long press (), the instrument enters the setting state, indicating that the password (as shown in the figure below) needs to be entered in the flashing. At this time, the last bit of the password is flashing. Use () and () keys to change the number, and () to change the flashing position. After entering the password, press ().



4.4 Parameter Determination

Password "1111" first enter password "1111" according to 4.3. Flash in this set of passwords the user can set zero correction, full range correction. After the change, press (Set) the meter to automatically save the

Settings and exit. (below)

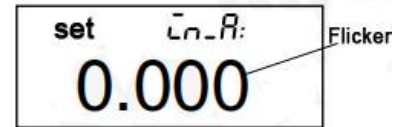


(in-A) Zero: the correction factor of the instrument at zero measurement point.
(Fi) Full: correction factor of instrument at high measuring point.

4.5 Parameter Setting:

First enter password "1111" according to 4.3. Press (Set) button to automatically enter

parameter setting, showing the first parameter (in-A)



In this set of passwords, the user can tap (Set) to enter the next parameter, which is the function of zero correction, full range correction, state selection, pressure/strength selection and broken line correction. After setting, long press (Set) button to automatically save Settings and exit.

($\bar{c}_n - A$)(in-A) Zero: the correction parameter of the instrument at zero measurement point.

(\bar{F}_i)(Fi) Full: correction factor of instrument at high measuring point.

(\bar{c}_{lb})(CLB) Equipment calibration selection: **ON---Equipment calibration**
OFF---Normal measurement

($\bar{m}od$)(MOD) Measurement Pattern : **OFF---Force Measurement**

F1— Strength Measurement 100*100mm Briquette

F2— Strength Measurement 95*45mm Briquette

F3— Strength Measurement 40*40mm Briquette

F4— Strength Measurement \varnothing 50mm Briquette

(\bar{c}_b)(C-B) Line correction **ON—The polyline function is effective**

OFF—Broken line function is invalid

C1~C10 :Represents the measured value of each broken line point

B1~B10 :Represents the standard value of each polyline point

When the input signal and the display data are monotonously rising nonlinear, and the data is uncertain when ordering, it needs to be corrected during calibration, and the broken line calculation function of the instrument can be used.

Monotonic rise refers to the increase of input signal and display data within the range of input signal. There will be no increase in input signals, but a decrease in display data.

1. Polyline operation related parameters

C-B: line function selection

C1~C10: represents the measured value of each broken line point

B1~B10: represents the standard value of each broken line point

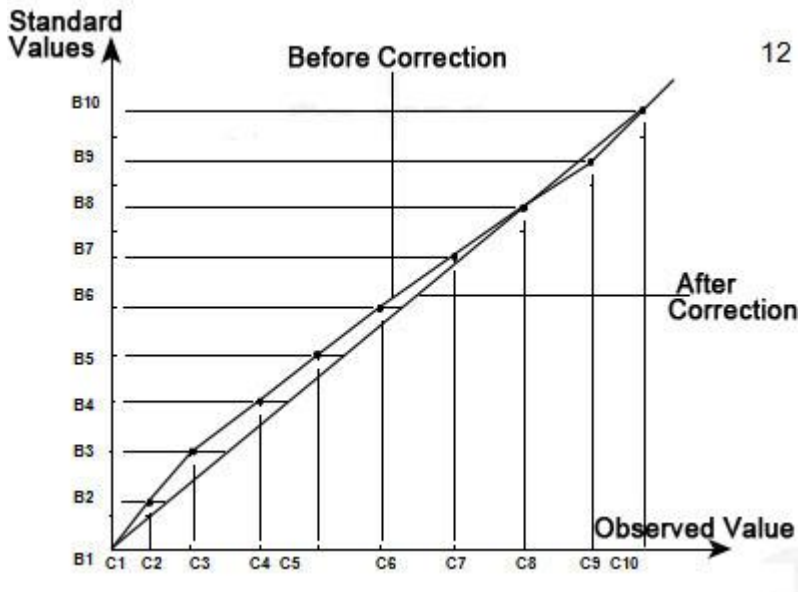
Measured value: refers to the display value before the broken line operation

Standard value: refers to the expected display value after line operation

2. Usage

Select the polyline (c-b) parameter as "OFF", and turn OFF the polyline calculation function. After the instrument is connected to the input signal, the input signal is increased from small to large. In this process, the measured value and standard value of each broken line point are recorded, that is, C1~C10, B1~B10 are obtained. Select the c-b parameter as "ON", turn ON the broken line function, and set the parameters C1~C10, B1~B10.

3. Sketch Map



If the measured value is less than C1, the meter will recurse downward according to the data of the latter section

If the measured value is greater than C10, the meter is recursed upward according to the data in the previous section

Calibration of Instrument:

In order to maintain the stability of the instrument and ensure the accuracy of engineering testing, the instrument should be checked regularly. Zero correction parameter and full correction parameter can be adjusted. The specific steps are as follows:

Before adjustment, connect the type 1 manual pump and oil cylinder, and connect the pressure numerical display and sensor.

Warm up the machine for 5 minutes

1. Zero adjustment, through zero correction parameter ($\bar{C}_n - R$)

Loosen the pressure relief valve of type 1 manual pump, turn the pressure relief valve counterclockwise to reset the oil cylinder, and record the display value after the display value is stable. If the display value is not zero, you can modify the zero correction parameter value

$$\underline{\underline{\text{Zero correction}(\bar{C}_n - R) = \text{The display value at this point}}}$$

2. Full degree adjustment, through the full degree correction parameter ($F\bar{C}$)

Tighten the pressure relief valve of type 1 manual pump clockwise.

Slow pressure type 1 manual pump pressure handle, so that the cylinder piston slowly rise, when the standard sensor placed on the piston will contact the test bench, the display value

zero pressure to the selected force value, record the display value

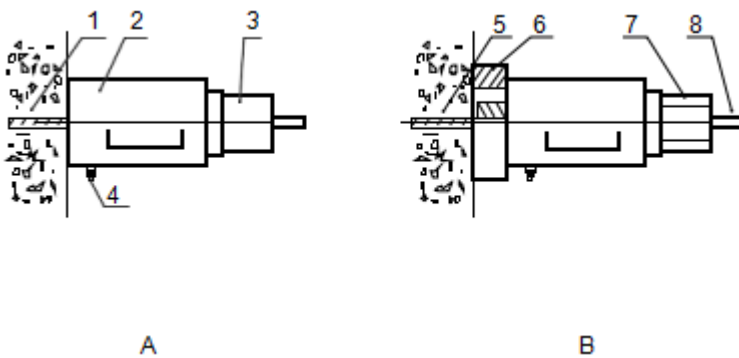
$$\text{Full degree correction parameter } (F_c) = \frac{\text{Standard force value}}{\text{Show numerical value}}$$

*.When the instrument needs calibration, please go to the bureau of metrology and other units with qualification of metrological verification for calibration. Users are not allowed to calibrate by themselves

6.Pull Out Test

Connect the hydraulic cylinder with the tested bolt according to the figure below. If the bolt is threaded steel, connect it according to figure A.If the bolt is the exposed part of round steel with thread, it can be connected according to figure B.HCMJ - type 1 Φ 6 ~ Φ 40 different specifications of 14 kinds of anchorage and various specifications of the extension rod, the user can according to the practical

You need to buy.



- *.1.Tested bolt (deformed steel bar), 2.Hydrocylinder, 3. Ground tackle, 4.Oil inlet, 5. Tested bolt (round steel), 6. Base, nut, 7.Extension rod

Tighten unloading valve clockwise, slow pressure type manual pump piston rod out about 10 mm, its purpose is to avoid tapping clamp piston rod were damage anchorage installation, convenient also bring back the anchor, anchor and anchor rod matching with fixed installation and reliable, and open the intelligent data processor (▲ Peak Value) button, appear

in the top right-hand corner of the LCD screen (▲ Peak Value), then press(▼ Reset), then can be tested.Uniform pressure type 1 manual pump, pressure increases until it reaches the maximum, stop pressurizing, the value shown on the table is the maximum tensile strength of the steel bar, the processor will be shut down after use.Unscrew the unloading valve, the piston can automatically retracted into the hydraulic cylinder. When necessary, you can knock the anchor ring of the anchor to make the clip drop off the anchor ring, and then

remove the hydraulic cylinder.

7. Precautions Common Faults and Troubleshooting Methods

7.1 Matters Need Attention :

1. The drawing instrument is strictly prohibited to be used for other tests unrelated to bolt detection.
2. The hydraulic system should be kept clean. After the cylinder is used up, the piston should be retracted, and the piston rod inside and outside diameter should often be refueled, to prevent rust. Nozzle joint should always pay attention to dust and knock.
3. The bottom of the oil cylinder must be laid flat and placed stably when it is working, with vertical force, and it is not allowed to work beyond the stroke.
4. The injected oil should be clean and free from impurities.
5. When doing drawing test, it is strictly prohibited to stand around the oil cylinder and pay attention to safety.

7.2 Common faults and troubleshooting methods

Fault phenomenon	Failure cause	Handling method
The pressure gauge shows no pressure	The oil cylinder is short of oil	Open the filling valve to refuel
	The unloading valve is not tightened	Tighten clockwise
	Joint leak	Tighten the joint
	Type 1 manual pump is not placed horizontally	Put it horizontally and then apply pressure

	Pressure gauge broken	To remove for inspection or calibration
Under pressure	Type 1 manual pump is short of oil	Refuel
	Joint leak	Check joints and sealing rings
	Use the wrong oil or dirty oil	oil change
The hydraulic cylinder is leaking oil	The sealing ring inside the cylinder block is damaged	Replace sealing ring
The pressure gauge reading has dropped markedly	The joint is leaking badly	Tighten or replace the sealing ring
	Seal ring failure	Replace the same type of sealing ring

	Oil is too dirty	Clean the oil cylinder, pump body oil pipe and oil cylinder with kerosene and change the oil
	Pump body of the one-way valve seal is poor	Return to factory for maintenance
The pressure gauge reads but the pressure is hydraulic, The cylinder has no pressure	Cylinder block	Dredge hoses
	Sub jam	Cleaning joint