







Laboratory equipment co.,limited

# JW SERIES ANCHOR ROD PULL-OFF TESTER

## PRODUCT MANUAL



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## CONTENTS


I. Introduction .....	1
II. Technical Data .....	1
III. Operation .....	1
IV. Digital pressure gauge .....	3
V. Usage of digital pressure gauge .....	3
VI. Calibration .....	4
VII. Anchor pole testing .....	5
VIII. Notice .....	6
IX. Common troubles and solution .....	7
X. Packing list .....	7



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## I. Introduction

The pull off tester is mainly use for solid strength detection of anchor rod, anchor rope, steel bar, expansion bolts and other kinds of anchoring parts. And it is the essential instrument in the construction of anchor supporting engineering.

It consists of hand-operated pump. Hydraulic cylinder, digital pressure gauge, and high-pressure oil pipe with connector. The hydraulic cylinder is hollow automatic reset type. When you use it, you should connect hand-operated pump with hydraulic cylinder by using connector.

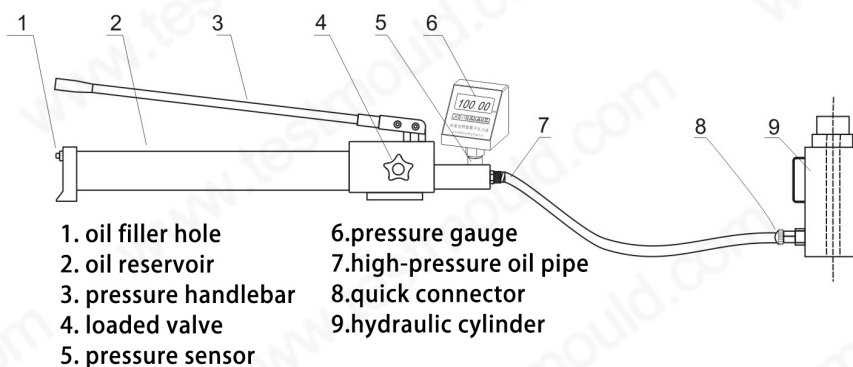
Conforms to: GB50367-2006

## II. Specification

Model No.	Oil cylinder center hole diameter	Cylinder stroke	Test range	Weight	Accuracy
JW-10T	27mm	60mm	0~100 KN	7.5Kg	0.1KN
JW-20T	34mm	80mm	0~200KN	14Kg	
JW-30T	45mm	80mm	0~300 KN	16Kg	
JW-50T	60mm	120mm	0~500 KN	29Kg	
JW-100T	85/95mm	150mm	0~1000 KN	45/65Kg	

## III. Operation

JW-10~30T sketch diagram:



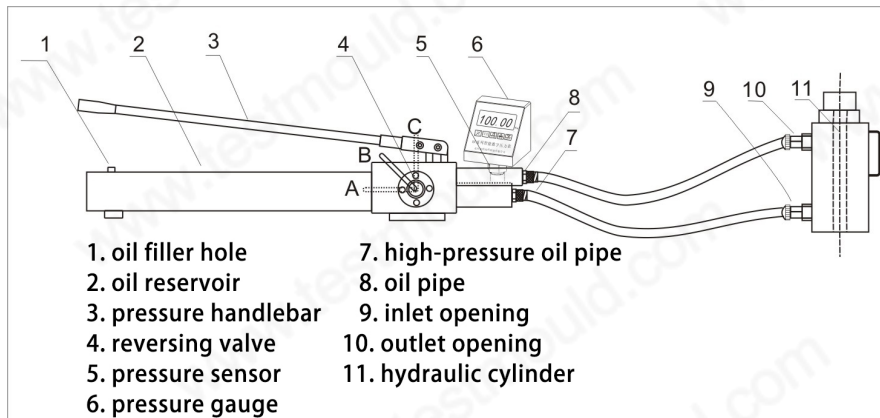
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JW-50~100T sketch diagram:



- The high-pressure oil pipe which has sensor should connect with inlet opening and the other side should connect with outlet opening.
- When pressure force, please wrench reversing valve to the forcing position. When pressure relief, please wrench reversing valve to the relief position.

### Check the oil quantity

If the piston does not return to the hydraulic cylinder totally, you should connect the oil pipe with the pump first. 10T~30T put off tester should anticlockwise turn the unloading valve on the pump body. 50T~100T put off tester should wrench reversing valve to the relief position. The purpose is to make the hydraulic oil in the hydraulic cylinder reflowing to the pump. Turn on the cover at the end of pump and check the oil quantity. Oil storage cylinder should leave 1/5space. If the oil is not full, you could refill hydraulic oil N32.

### Exhaust air

After finishing the hydraulic system, oil storage tube, oil pipe and hydraulic cylinder always mixed with air. In order to let it work normally, the air must be exhausted.

Method: Unscrew the oil cover for exhausting the air in the Oil storage cylinder. Put the hand-operated pump higher than hydraulic cylinder and tighten the valve clockwise. Press the pump and make the hydraulic cylinder piston to the maximum the itinerary. And then turn on the unloading valve for making the piston back and repeat several times.




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## IV. Digital pressure gauge

Press the  key for seconds and automatic display to [0]. If it does not display [0], please press [RESET]. If it shows [◀], it means keeping in the peak value state. And even the pressure how to change, the maximum value will still keep it. (If press the [peak] showing the last testing value, press one more time for showing [000.0]. Press [peak], the value could be converted between the peak value and current value. When this [◀] showing on the top right corner, it enters into the current value state. The current value will be changed with the changeable pressure.

Press [save] key in peak keeping state for saving the peak value.

Press [save] in current value state for reviewing the testing values.


Press [peak] or [save] for reviewing the value in front and behind.

Press [peak] and [save] at the same time for returning into current value state.

Press [RESET] in the test review state for clear the current value.

## V. Digital pressure displayer usage

### Pressure testing

Press  key. Show the original value and press [RESET] to start testing.

Press [peak] for converting peak value and current value. When [◀] show on the left, it means the peak keeping state. In this state, it shows the maximum value at this time.

### Data save


Press the [save] in the peak keeping state. [S X] will be showed on the displayer. It means it has been saved the peak value in the [X].


### Review the saving data


There is no [◀] under the normal testing state. Press [save] to enter to the saving state. When



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showing S X, it means it will show the number X value. Waiting a few seconds, the number X saving value will be showed.

## Backlight

Backlight is always used in the dark testing situation. In order saving the power, it will be cut off within 3-4 mins.


## VI. Calibration

Step 1. After pressing  key, press [RESET] a few seconds until the [♥>] showing on the left.




Step 2. Connect with the main tester and start forcing until reach the maximum value of the machine. (Eg. The maximum value of JW-10 is 100KN)


Step 3. Press the  key until showing [♥>] on the left of the displayer.


Step 4. Press  key to shut down the instrument and release the pressure. Instrument gas been calibrated completely. Compare testing data with the standard data. If the error is a little big, please calibrate it again.

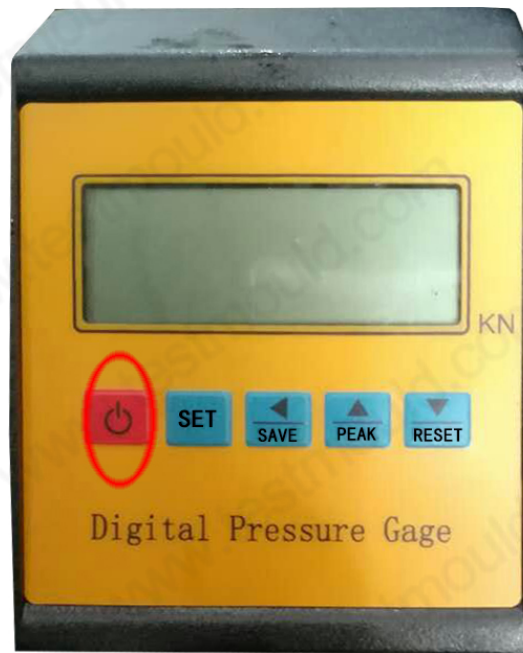


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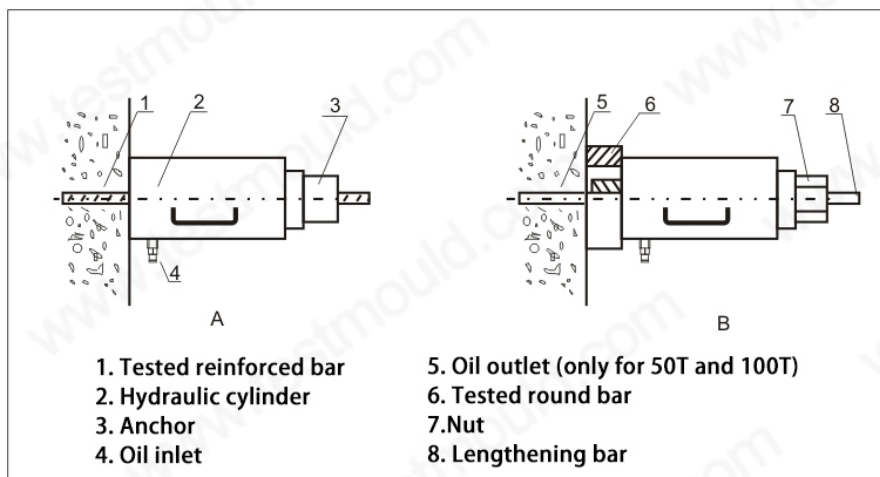
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## VII. Anchor bolt testing

According to the figure below, connect instrument with tested anchor bolt. If the anchor is reinforced bar, please see the Fig. A. If the anchor is round bar which exposed part having thread, please see the Fig. B

Please select the suitable anchor for testing.

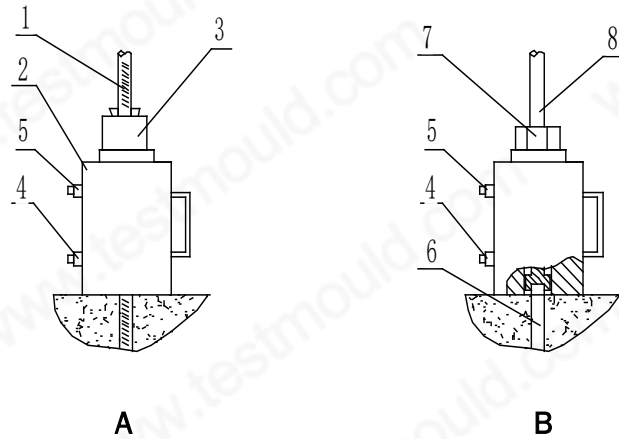


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1. Tested reinforced bar 2. Hydraulic cylinder 3. Anchor 4. Oil inlet  
5. Oil outlet (only for 50T and 100T) 6. Tested round bar 7. Nut 8. Lengthening bar

Clockwise tighten unloading valve. Push the hand pump slowly and make the piston rod extending 10mm. The purpose is to avoid damaging piston rod when install the anchor and beat cuneus. Install the anchor or nut. Open the digital displayer. Push the hand pump slowly. The pressure will increase to the maximum and stop. Record the save the test value and shut down the digital displayer.

Release the unloading valve. The piston can automatically return back to the hydraulic cylinder.

Fig.A When this connecting state needs disassembly, beat the anchor shell for letting clamping piece leave from anchor. And remove the hydraulic cylinder. Fig.B When in the Fig.B connecting state needs disassembly, please remove the nut first and then remove the hydraulic cylinder.

## VIII. Notice

- Keep the hydraulic cylinder system clear. Please return the piston after using.
- Often put some oil on the piston rod diameter for avoiding rustiness. The nozzle joint should be against dust and bump.
- When hydraulic cylinder is working, it should be laid flatwise. Shall not work over the test range.
- When testing, it is forbidden to stand people around cylinder, pay attention to safety.
- Oil tube should fill clear N32 ANTI-WEAR HYDRAULIC OIL. Fuel-injection quantity shall not be too full. Oil tube should leave some space (about leave 1/5 space), in order to make the air discharge.



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- It is forbidden to use overload. Otherwise it will cause permanent damage. JW-10T is to 100kN. JW-20T is to 200kN. JW-30T is to 300kN.

## IX. Fault solution

Fault	Reason	Solution
There is no pressure on the gauge	Cylinder is short of oil	Fill oil in the cylinder
	Unloading valve is lax	Screw clockwise
	Connecting leak oil	Tighten the connecting
	Hand pump is not horizontal	Put level and test again
	The pressure gauge is damaged	Remove it, or calibrate again
Cannot achieve pressure	Hand pump is short of oil	Fill oil
	Connecting leak oil	Check connection and sealing ring
	Use wrong oil or the oil is dirty	Change oil
The hydraulic cylinder leak oil	Internal sealing ring of cylinder is damaged	Change sealing ring
The test value on the gauge declines sharply	Connecting leak oil Severely	Tighten or change seal ring
	Sealing ring lose efficacy	Change the sealing ring
	The oil is too dirty	Wash oil cylinder, pump body and oil tube with kerosene oil and then change the oil
	The check valve in the pump body is bad sealing	Returns to the factory for repairing
Pressure gauge has value but cylinder has no pressure	Cylinder blocking	Dredge hoses
	Connecting blocking	Clean connecting
Oil cylinder piston cannot return	Oil filler hole do not open	Open oil filter hole

## X. Packing List

NO.	Item	Quantity
1	Hydraulic cylinder	1
2	Hand pump	1
3	Manual	1
4	Certification	1
5	Selected spare parts	



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