Operation Instruction
Conical Fitting with a 6% (Luer) Taper Multipurpose Tester

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1. Description

ZD 1962-T Conical Fitting with a 6% (Luer) Taper Multipurpose Tester is designed and produced according to common item in the first part of GB/T1962.1—2000 of injector, injector needle, other medical apparatus and 6% (Luer) Cone Joint. It is used to test the liquid leakage, the air leakage, the separating force, stress cracking.

ZD 1962-T Conical Fitting with a 6% (Luer) Taper Multipurpose Tester is designed and produced according to the relative item in the second part of GB/T1962.1-2005 (idt ISO594-2: 1998) of injector, injector needle, other medical apparatus and 6% (Luer) Cone Joint. It is used to test the liquid leakage, the air leakage, the separating force, unscrewing torsional moment, easy assembling, anti-slippery, stress cracking.

ZD1962-T Tester consists of PLC controller, liquid crystal touch and control screen, step motor, driver of step motor, transmission organization, sensor, clamp, printer. The screen displays in Chinese, use touch and control key to select, operate, set, show tested force in real time and holding time, has the feature of complete function, convenient operation, clear displaying.

2. Technology Parameter:

2.1 Environment:
   Working Temperature: 5~40°C
   Relative humidity: 45~80%
   Source voltage: 220V ± 22V
   Electric network frequency: 50Hz ± 1Hz

2.2 Technology Guideline:
   Axial force span: 20N~40N, error should be less than ±2% of the read number
   Torsional moment span: 0.02N·m~0.16N·m, error should be less than ±2.5% of the read number;
   Inner pressure: 300kPa~330kPa, error should be less than ±2% of the read number.

3 Working Principle sketch map
3. **Installation Way:**

3.1 Connect the compressor with tester:

Put the tester on the platform horizontally, use a pipe to connect the outlet (below the cistern) of the cistern with the infall (at the left of the tester) of the tester, use one of the head of another pipe to connect the outlet (at the left of the tester) of the tester, and put the other head of the pipe into the cistern (the user need to prepare it). The pipe must be inserted to the electrical outlet and inserted to the bottom. The power plug of the empty press pump is insert to the electrical outlet ay the back of the machine and press the switch of the empty press pum (press 1). The water in the cistern beside the compressor must be pure water or distilled water. Open the infall switch slowly (upward) above the cistern when the water is not enough, pluck the green pipe above the cistern (press the plastic head on the electrical outlet to the bottom), add water from the infall, add water to the 2/3 of the cistern (watch the transparent pipe). After finishing adding water, insert the green pipe and close the infall switch (press to the horizon). There is no water in the cistern when the machine leaves factory.

3.2 Installation of the injector: （graph one and graph two）
Adjust injector and install the adjusting screws (adjust it to the suitable place according to the size of the injector external diameter). Use the injector external crimping to fix the screws, fix the injector external crimping, use back and forth
adjusting screws, up and down adjusting screws, left and right adjusting screws to aim the cone of the injector to the standard joint at the left of the tester, then screw the left and right adjusting screws tightly. In liquid leakage test, fix the bolt on the bolt shelf by screw cap, you can adjust the bolt up and down to withstand injector presser when the injector is pressing. （graph two）

Notice: the zero calibration tail of the tested injector must exceed the injector needle fixed device a little.

3.3 Installation of injector needle: （graph one）

Put the injector needle seat in the fixed device of the injector needle seat, the needle point is rightward, the joint part of the needle seat embeded in the fixed device, use injector needle fixed screws to tighten it. Adjust up and down screws, back and forth screws to make injector needle seat aim at the standard joint at the left of the tester.

4 Test and operation of cone joint:

4.1 Connect the tester to the net power source and open the power source switch (at the back of the tester)

Conical fitting - Main Menu

Conical lock fitting - Main Menu

Conical fitting - Main Menu—Test Scheme Option

Test Number
Liquid Leakage  Air Leakage
Separating Force  Stress Cracking
Injector mL
Injector Needle mm
Adjustment of System Time  Measure

is touch and control key , press Conical fitting - Main Menu

You can choose only one from liquid leakage, air leakage, separating force, and stress cracking( it will turn red if you press it). You can choose only one from injector and injector needle. After doing the choice, you can enter testing.

Press Test Number will display number keyboard.

If you want to set the number as “888”, first press CLR, clear the original number(shown on the upper right), press 8 three
times, it will show “888”, press ENTER will return to main menu. If you press wrong key, reset according to the above-mentioned process, after setting the right number, press ENTER, the Test Number on the main menu will be “888”.

Press [Injector], the operation is the same as above-mentioned, it displays injector capacity, the unit is mL.

Press [Injector Needle], the operation is the same as above-mentioned, it display injector needle external diameter, the unit is mm. is decimal point, for example, 1.2mm, press [1], [.,], [2], then press ENTER, it will display [Injector Needle] 1.2mm.

4.2 press [Move] on the main menu, the screen displays

<table>
<thead>
<tr>
<th>Axis Move Leftwards</th>
<th>Axis Move Rightwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return to Main Menu</td>
<td></td>
</tr>
</tbody>
</table>

the standard joint, then press [Return to Main Menu].

4.3 press [Measure] on the main menu, the screen displays

<table>
<thead>
<tr>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axial Force: [Zero Setting] [N] [Positive Rotation]</td>
</tr>
<tr>
<td>Torsional Moment: [Reverse Rotation]</td>
</tr>
<tr>
<td>Zero Setting [N·m]</td>
</tr>
<tr>
<td>Pressure: [Add Pressure] [kPa]</td>
</tr>
<tr>
<td>Orient Menu</td>
</tr>
</tbody>
</table>

Measure axial force: put tester side, make bolt shelf upward, then press Zero Setting, it displays 0.000N, then put 20N, 30N, 40N standard weights on the shelf in order, the error should be less than ±2% compared with the number on the screen.

Measure torsional moment: put the tester horizontally, press [Positive Rotation] will begin positive rotation, press again will stop, press [Reverse Rotation] will begin reverse rotation, press again will stop, put the torsional moment sensor horizontally, put a special equipment whose height can be adjusted( see annex). Adjust the height to make the torsional moment sensor and stressed axis hang in the air, then insert the weight installing shelf for torsional moment measurement(see annex). Press [Zero Setting], make it show 0.00N.m, put 0.5N, 2N, 3N, 4N on the weight installing
shelf in order, the torsional moment is 40mm, it will show 0.020N.m, 0.080N.m, 0.120N.m, 0.160N.m, the error should be less than ±2.5%.

Measure pressure: insert the power plug of the empty press pump to the net electrical source, close the electrical switch of the empty press pump, set a standard pressure gauge between the outlet pipe of the cistern and the infall of the apparatus. Press Zero Setting, it will display 000kPa, press Add Pressure, open the electrical switch of the empty press pump, begin to add pressure, close the switch of the empty press pump when it shows 300Kpa, the error should be less than±2%, in the same way, measure 330Kpa, the error should be less than ±2%. The company use the orient to debug, so the user can not enter. Notice: there should be no inner pressure before orienting, refer to the 3.1 operation.

4.4 press Adjustment of System Time in the main menu, the screen displays press and move cursor to the adjusted position press + - to add or reduce number set year, month, day, hour, minute, and second according to the present time press SAVE can return to main menu

4.5 choose liquid leakage and injector in the menu:
4.5.1 use number 5 joint (standard inner cone joint for liquid leakage test), install the joint and screw it tightly, push the injector pressor to the bottom, install the tested injector according to 3.2 and 4.2.
4.5.2 press test, axial motor, torsional moment motor and begin to work, number, injector capacity is the same as the main menu, the screen displays.

Exert 27.5N axial force when installing, hold 5S, turn with 0.1N.m torsional moment, the turn angel is less than 90. Add the inner water pressure to 300kPa±10kPa and hold 30S, if there is drip dropping from the joint, press Unqualified, if there is no drip dropping
from the joint, press **Eligible**, after judging whether is eligible or not, press **Exit from Test** can go back to original position, press **Printer** if you need to print.

**Injector Liquid Leakage Test**

<table>
<thead>
<tr>
<th>Number:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Injector Capacity:</td>
<td>mL</td>
</tr>
<tr>
<td>Axial Force:</td>
<td>N</td>
</tr>
<tr>
<td>Torsional Moment:</td>
<td>N·m</td>
</tr>
<tr>
<td>Inner HydraulicPressure:</td>
<td>kPa</td>
</tr>
</tbody>
</table>

Printing format

After finishing printing, press **Return to Main Menu** do the selecting and testing of the next item.

Notice 1: To continue the test, you must exit from the test and back to original position.

Notice 2: the original data will be cleared after returning to main menu.

Notice 3: screw the standard joint tightly. (first press the bracket of the torsional moment sensor, then screw the standard joint tightly to prevent destroying the sensor)

Notice 4: if you want to print, you must exit from the test and back to original position.

Notice 5: you can return to main menu only after finishing printing.

4.6 Choose liquid leakage and injector needle in the main menu:

4.6.1 use number 11 standard exterior cone joint, install it and screw tightly.

Install the tested injector needle and clamp according to 3.3 and 4.2, close the needle and the needle head is rightwards.

4.6.2 Press **Test**, the screen displays

**Liquid Leakage Test**

<table>
<thead>
<tr>
<th>Number:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Injector Needle external diameter:</td>
<td>mm</td>
</tr>
<tr>
<td>Axial Force:</td>
<td>N</td>
</tr>
<tr>
<td>Torsional Moment:</td>
<td>N·m</td>
</tr>
<tr>
<td>Loading Time:</td>
<td>S</td>
</tr>
<tr>
<td>Inner HydraulicPressure:</td>
<td>kPa</td>
</tr>
<tr>
<td>Holding Time:</td>
<td>S</td>
</tr>
</tbody>
</table>

Press **Print** **Exit from Test** **Return to Main Menu**

others are the same as 4.5.2
4.6.3 Printing format

<table>
<thead>
<tr>
<th>Injector Needle Liquid Leakage Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Injector Needle external diameter:  mm</td>
</tr>
<tr>
<td>Axial Force:                        N</td>
</tr>
<tr>
<td>Torsional Moment:                   N·m</td>
</tr>
<tr>
<td>Inner Hydraulic Pressure:           kPa</td>
</tr>
<tr>
<td>Holding Time:                       30 S</td>
</tr>
<tr>
<td>Test Conclusion:</td>
</tr>
<tr>
<td>Tester:</td>
</tr>
<tr>
<td>Test Time:</td>
</tr>
</tbody>
</table>

others are the same as 4.5.3

4.7 Choose air leakage and injector in the main menu:

4.7.1 use number 10 detachable joint to install the device, install it and screw tightly, put number 13 detachable joint( standard inner cone joint) in the number 10 joint, infuse distilled water to the tested injector, the water quantity should exceed 25% of the scale capacity of the injector, the external part of the components must be dry, discharge all air, leaving a small air bubble is allowed, adjust the water capacity in the injector to the 25% of the scale capacity.

4.7.2 install the tested injector according to 3.2, 4.2, there is no need to install bolt

4.7.3 press [Test], the screen displays

Install according to 4.5.2, after installation, press [Exit] from Test. After exiting from the test, you can remove the tested injector( remove the number 13 joint at the same time), keep the tube mouth of the injector downward, make the core pole back to the rating capacity position, hold 15S, there should be no air bubble, the air bubble formed in the first 5S can be ignored.

4.7.4 Printing Format
4.8 choose air leakage and injector needle in the main menu:

4.8.1 use number 10 detachable joint to install the device, install it and screw tightly, put number 12 detachable joint in the number 10 joint, put the heel of the tested injector needle in the cross recess of the clamp, tight the needle and make it rightwards.

4.8.2 Install injected needle according to 3.3 and 4.2.

4.8.3 Press Test on the main menu, the screen displays Install according to 4.5.2, after installation, press Exit from Test.

After exiting from the test, you can remove the tested injector (remove the number 12 joint at the same time), connect the number 12 joint with the injector. This injector conforms to GB15810 and has been proved eligible in liquid leakage test and air leakage test. Infuse water to the tested injector, the water quantity should exceed 25% of the scale capacity of the injector, the external part of the components must be dry, discharge all air, leaving a small air bubble is allowed, adjust the water capacity in the injector to the 25% of the scale capacity. Seal the injector needle, keep the tube mouth of the injector downward, make the core pole back to the rating capacity position, hold 15S, there should be no air bubble, the air bubble formed in the first 5S can be ignored.
4.8.4 Printing format

<table>
<thead>
<tr>
<th>Injector Needle Liquid Leakage Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Injector Needle external diameter:  mm</td>
</tr>
<tr>
<td>Axial Force: N</td>
</tr>
</tbody>
</table>

4.9 Choose separating force and injector in the main menu:

4.9.1 Use number 5 standard inner cone joint, install it and screw tightly.

4.9.2 Install tested injector according to 3.2.

4.9.3 Press [Test] in the main menu, the screen displays.

Install according to 4.5.2, after installation, test separating force, exert 25N axial force in the deviation direction from the test clamp, when it reaches 25N±0.5N, time 10S. When the time is finished, the unseparated is eligible, press [Eligible]. The separated is unqualified, press [Unqualified]. Press [Exit from Test], you can remove the tested part. Press [Print] if you want to print.

4.9.4 Printing format

<table>
<thead>
<tr>
<th>Seperating Force Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Injector Capacity: mL</td>
</tr>
<tr>
<td>Axial Force: N</td>
</tr>
<tr>
<td>Torsional Moment: N·m</td>
</tr>
<tr>
<td>Holding Time: S</td>
</tr>
<tr>
<td>Separating Force: N</td>
</tr>
<tr>
<td>Lasting Time: S</td>
</tr>
</tbody>
</table>

| Print | Exit from Test | Return to Main Menu |

4.10 Choose separating force and injector needle in the main menu:
4.10.1 Use number 11 standard exterior cone joint, install it and screw tightly.

4.10.2 Install tested injector needle according to 3.3 and 4.2.

4.10.3 Press Test in the main menu, screen displays.

<table>
<thead>
<tr>
<th>Seperating Force Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Injector Needle external diameter: mm</td>
</tr>
<tr>
<td>Axial Force:</td>
</tr>
<tr>
<td>Torsional Moment:</td>
</tr>
<tr>
<td>Holding Time:</td>
</tr>
<tr>
<td>Separating Force:</td>
</tr>
<tr>
<td>Lasting Time:</td>
</tr>
<tr>
<td><strong>Others are the same as 4.9.3</strong></td>
</tr>
</tbody>
</table>

4.10.4 Printing format

<table>
<thead>
<tr>
<th>Injector Needle Separating Force Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Injector Needle external diameter: mm</td>
</tr>
<tr>
<td>Axial Force:</td>
</tr>
<tr>
<td>Torsional Moment:</td>
</tr>
<tr>
<td>Separating Force:</td>
</tr>
<tr>
<td>Lasting Time:</td>
</tr>
<tr>
<td>Test Conclusion:</td>
</tr>
<tr>
<td>Tester:</td>
</tr>
<tr>
<td>Test Time:</td>
</tr>
</tbody>
</table>

4.11 Choose stress cracking and injector in the main menu:

4.11.1 Use number 10 cone joint, install it and screw tightly. Put number 13 detachable standard inner cone joint in the number 10 cone joint.

4.11.2 Install tested injector according to 3.2 and 4.2.

4.11.3 Press Test in the main menu, screen displays.

<table>
<thead>
<tr>
<th>Stress Cracking Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Injector Capacity:</td>
</tr>
<tr>
<td>Axial Force:</td>
</tr>
<tr>
<td>Torsional Moment:</td>
</tr>
<tr>
<td>Holding Time:</td>
</tr>
<tr>
<td><strong>Others are the same as 4.5.3</strong></td>
</tr>
</tbody>
</table>

Install according to 4.5.2, after
installation, the axial force will reach 27.5N, press Exit from Test, remove number 1 joint with tested injector, keep it for 48h±1h in 20℃±5℃ environment, there should be no stress cracking phenomenon of joint.

4.11.4 Printing format

4.12 choose stress cracking and injector needle in the main menu

4.12.1 Use number 10 cone joint, install it and screw tightly. Put number 12 detachable standard exterior cone joint in the number 10 cone joint.

4.12.2 Install tested injector needle according to 3.2 and 4.2.

4.12.3 Press Test in the main menu, screen displays.

Others are the same as 4.17.3

4.12.4 Printing format others are the same as 4.5.3
5 Operation instruction:

5.1 connect net electrical source, turn on the switch of the electrical source (at the back of the tester).

[Conical lock fitting-Main Menu-Test Scheme Option]

Test Number
- Liquid Leakage
- Air Leakage
- Separating Force
- Unscrew Torsional Moment
- Easy Assembling
- Anti-slippery
- Stress Cracking
- Injector mL
- Injector Needle mm
- Clock Setting
- Measure
- Move
- Test

is touch and control key, press Locked Joint Main Menu. You can choose only one from liquid leakage, air leakage, separating force, unscrew torsional moment, easy assembling, anti-slippery and stress cracking (it will turn red if you press it). You can choose only one from injector and injector needle. After doing the choice, you can enter testing

Press Test Number will display number

If you want to set the number as “888”, first press CLR, clear the original number (shown on the upper right), press 8 three times, it will show “888”, press ENTER will return to main menu. If you press wrong key, reset according to the above-mentioned process, after setting the right number, press ENTER, the Test Number on the main menu will be “888”.

Press Injector, the operation is the same as above-mentioned, it displays injector capacity, the unit is mL.

Press Injector Needle, the operation is the same as above-mentioned, it display injector needle external diameter, the unit is mm., is decimal point, for
example, 1.2mm, press 1, 2, 3, then press ENTER, it will display Injector Needle 1.2mm.

5.2 press Move in the main menu, screen displays

| Axis Move Leftwards | Axis Move Rightwards | Return to Main Menu |

- Press Axis Move Leftwards, press again will stop moving. Press Axis Move Rightwards, press again will stop moving.
- Move the tested part 5mm~10mm from the standard joint, then press Return to Main Menu.

5.3 press Measure in the main menu, screen displays, it has been measured in 4.3, there is no need to measure again.

Measure axial force: put tester side, make bolt shelf upward, then press Zero Setting, it displays 0.000N, then put 20N,30N,40N standard weights on the shelf in order, the error should be less than ±2% compared with the number on the screen.

Measure torsional moment: put the tester horizontally, press Positive Rotation will begin positive rotation, press again will stop, press Reverse Rotation will begin reverse rotation, press again will stop, put the torsional moment sensor horizontally, put a special equipment whose height can be adjusted( see annex). Adjust the height to make the torsional moment sensor and stressed axis hang in the air, then insert the weight installing shelf for torsional moment measurement(see annex). Press Zero Setting, it displays 0.000N.m, put 0.5N, 2N, 3N, 4N on the weight installing shelf in order, the torsional moment is 42mm, it will show 0.021N.m, 0.084N.m, 0.126N.m, 0.168N.m, the error should be less than ±2.5%.

Measure pressure: insert the power plug of the empty press pump to the net electrical source, close the electrical switch of the empty press pump, set a standard pressure gauge between the outlet pipe of the cistern and the infall of the
apparatus. Press **Zero Setting**, it will display 000kPa, press **Add Pressure**, open the electrical switch of the empty press pump, begin to add pressure, close the switch of the empty press pump when it shows 300Kpa, the error should be less than ±2%, in the same way, measure 330Kpa, the error should be less than ±2%. The company uses the orient to debug, so the user can not enter. Notice: there should be no inner pressure before orienting, refer to the 3.1 operation.

5.4 press **Adjustment of System Time** in the main menu, the screen displays

![Date/Time](image)

press **◄**  ▶ and move cursor to the adjusted position
press **+**  **-** to add or reduce number
set year, month, day, hour, minute, and second according to the present time
press **SAVE** can return to main menu

5.5 choose liquid leakage and injector in the main menu:

5.5.1 use number 5 joint (standard inner cone joint for liquid leakage test), install the joint and screw it tightly, push the injector pressor to the bottom, install the tested injector according to 3.2 and 4.2.

5.5.2 press test, axial motor, torsional moment motor and begin to work, number, injector capacity is the same as the main menu, the screen displays.

When torsional moment reaches 0.115 N·m~0.12 N·m, axial force reaches 27N~27.5N. Add the inner water pressure to 300kPa±10kPa and hold 30S, if there is drip dropping from the joint, press **Unqualified**, if there is no drip dropping from the joint, press **Eligible**, after judging whether is eligible or not, press **Exit from Test** can go back to original position, press **Printer** if you need to print.

5.5.3 Printing format

After finishing printing, press **Return to Main Menu** do the selecting and testing of the next item.

Notice1: To continue the test, you must exit from the test and back to original position.
Notice 2: the original data will be cleared after returning to main menu.

Notice 3: screw the standard joint tightly. (First press the bracket of the torsional moment sensor, then screw the standard joint tightly to prevent destroying the sensor)

Notice 4: if you want to print, you must exit from the test and back to original position.

Notice 5: you can return to main menu only after finishing printing.

5.6 Choose liquid leakage and injector needle in the main menu:

5.6.1 Use number 7 standard exterior cone joint, install it and screw tightly. Install the tested injector needle and clamp according to 3.3 and 4.2, close the needle and the needle head is rightwards.

5.6.2 Press [Test], the screen displays

<table>
<thead>
<tr>
<th>Liquid Leakage Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Injector Needle external diameter: mm</td>
</tr>
<tr>
<td>Axial Force:</td>
</tr>
<tr>
<td>Torsional Moment:</td>
</tr>
<tr>
<td>Inner Hydraulic Pressure: kPa</td>
</tr>
<tr>
<td>Holding Time:</td>
</tr>
</tbody>
</table>

[Print] [Exit from Test] [Return to Main Menu]

5.6.3 printing format

<table>
<thead>
<tr>
<th>Injector Needle Liquid Leakage Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number:</td>
</tr>
<tr>
<td>Injector Needle external diameter: mm</td>
</tr>
<tr>
<td>Axial Force:</td>
</tr>
<tr>
<td>Torsional Moment:</td>
</tr>
<tr>
<td>Inner Hydraulic Pressure: kPa</td>
</tr>
<tr>
<td>Holding Time:</td>
</tr>
<tr>
<td>Test Conclusion:</td>
</tr>
<tr>
<td>Tester:</td>
</tr>
<tr>
<td>Test Time:</td>
</tr>
</tbody>
</table>

Others are the same as 4.5.2

5.7 Choose air leakage
and injector in the main menu

5.7.1 Use number 0 detachable joint to install the device, install it and screw tightly, put number 1 detachable joint (standard inner cone joint) in the number 0 joint, infuse distilled water to the tested injector, the water quantity should exceed 25% of the scale capacity of the injector, the external part of the components must be dry, discharge all air, leaving a small air bubble is allowed, adjust the water capacity in the injector to the 25% of the scale capacity.

5.7.2 Install the tested injector according to 3.2, 4.2, there is no need to install bolt.

5.7.3 press Test, the screen displays.

When torsional moment reaches 0.115N·m~0.120 N·m, axial force reaches 27N~27.5N, press Exit from Test. When torsional moment or axial force can not reach the standard, press Unqualified, printing will be unqualified, remove the tested injector( remove the number 1 joint at the same time), keep the tube mouth of the injector downward, make the core pole back to the rating capacity position, hold 15S, there should be no air bubble, the air bubble formed in the first 5S can be ignored.

5.7.4 Printing format

<table>
<thead>
<tr>
<th>Injector Air Leakage Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number:</strong></td>
</tr>
<tr>
<td>Injector Capacity: mL</td>
</tr>
<tr>
<td>Axial Force: N</td>
</tr>
<tr>
<td>Torsional Moment: N·m</td>
</tr>
<tr>
<td>Test Conclusion:</td>
</tr>
<tr>
<td>Tester:</td>
</tr>
</tbody>
</table>

5.8 choose air leakage and injector needle in the main menu:

5.8.1 use number 0 detachable joint to install the device, install it and screw
tightly, put number 3 and number 2 detachable joints in the number 0 joint (number 2 and number 3 screw tightly), put the heel of the tested injector needle in the cross recess of the clamp, tight the needle and make it rightwards.

5.8.2 Install injected needle according to 3.3, 4.2.
5.8.3 Press Test on the main menu, the screen displays.

When torsional moment reaches 0.115N·m~0.120 N·m, axial force reaches 27N~27.5N 时, press Exit from Test. When torsional moment or axial force cannot reach the standard, press Unqualified, press Print if you need to print, printing will be unqualified. Remove the tested injector needle (with number 2 and number 3 joints) after the test, unscrew number 2 joint, connect number 3 joint with injector. This injector conforms to GB15810 and has been proved eligible in liquid leakage test and air leakage test. Infuse water to the tested injector, the water quantity should exceed 25% of the scale capacity of the injector, the external part of the components must be dry, discharge all air, leaving a small air bubble is allowed, adjust the water capacity in the injector to the 25% of the scale capacity. Seal the injector needle, keep the tube mouth of the injector downward, make the core pole back to the rating capacity position, hold 15S, there should be no air bubble, the air bubble formed in the first 5S can be ignored.

5.8.4 printing format

### Injector Needle Air Leakage Test

Number: Injectors Needle external diameter: mm
Axial Force: N
Torsional Moment: N·m
Test Conclusion:
Tester:
Test Time:
5.9 Choose separating force and injector in the main menu:
5.9.1 Use number 6 standard inner cone joint, install it and screw tightly.
5.9.2 Install tested injector according to 3.2 and 4.2.
5.9.3 Press [Test] in the main menu, the screen displays.

When torsional moment reaches 0.115 N·m~0.120 N·m, axial force reaches 27N~27.5N, test separating force, exert 25N axial force in the deviation direction from the test clamp, when it reaches 25N±0.5N, time 10S. When the time is finished, the unseparated is eligible, press [Eligible]. The separated is unqualified, press [Unqualified]. Press [Exit from Test], you can remove the tested part. Press [Print] if you want to print.

5.9.4 printing format

### Injector Separating Force Test

<table>
<thead>
<tr>
<th>Number:</th>
<th>Injector Capacity: mL</th>
<th>Eligible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axial Force: N</td>
<td>Torsional Moment: N·m</td>
<td>Unqualified</td>
</tr>
<tr>
<td>Separating Force: N</td>
<td>Lasting Time: 10 S</td>
<td></td>
</tr>
</tbody>
</table>

Test Conclusion:
Tester:
Test Time:

5.10 Choose separating force and injector needle in the main menu:
5.10.1 Use number 8 standard exterior cone joint, install it and screw tightly.
5.10.2 Install tested injector needle according to 3.3 and 4.2.

5.10.3 Press [Test] in the main menu, screen displays.

Others are the same as 4.9.3
5.10.4 Printing format

**Injector Needle Separating Force Test**

Number:
Injector Needle external diameter: mm
Axial Force: N
Torsional Moment: N·m
Separating Force: N
Lasting Time: 10 S
Test Conclusion:
Tester:
Test Time:

5.11 Choose stress cracking and injector in the main menu:

5.11.1 Use number 5 cone joint, install it and screw tightly.

5.11.2 Install tested injector according to 3.2 and 4.2.

5.11.3 Press [Test] in the main menu, screen displays.

When axial force reaches 27N~27.5N, torsional moment reaches 0.115N·m~0.120 N·m, begin the test and unscrew the torsional moment. When the unscrewed torsional moment reaches 0.018 N·m~0.02 N·m, begin to time, time for 10S。 When the unscrewed torsional moment does not reaches 0.018 N·m, it is unqualified.

5.11.4 Printing format

**Injector UnscREW Torsional Moment Test**

Number:
Injector Capacity: mL
Axial Force: N
Torsional Moment: N·m
Separating Force: N
Lasting Time: 10 S
Test Conclusion:
Tester:
Test Time:

others are the same as 4.5.3
5.12 Choose unscrew torsional moment and injector needle in the main menu
5.12.1 Use number 7 cone joint, install it and screw tightly.
5.12.2 Install tested injector needle according to 3.2 and 4.2.
5.12.3 Press Test in the main menu, screen displays.

5.12.4 Printing format

5.13 Choose easy assembling injector in the main menu
5.13.1 Use number 0 cone joint, install it and screw tightly, put number 1 detachable inner cone joint in the number 0 joint.
5.13.2 Install tested injector needle
5.14 Choose easy assembling injector needle in the main menu:
5.14.1 Use number 0 cone joint, install it and screw tightly. put number 2 detachable exterior cone joint in the number 0 joint.
5.14.2 Install tested injector needle according to 3.2 and 4.2.

5.14.4 Printing format

Others are the same as 4.13.3
5.15 Choose anti-slippery, injector in the main menu:
5.15.1 Use number 6 cone joint, install it and screw tightly.
5.15.2 Install tested injector needle according to 3.2 and 4.2.
5.15.3 Press [Test] in the main menu, screen displays.

When axial force reaches 27N~27.5N, torsional moment reaches 0.15 N·m~0.155 N·m, hold for 5s. If the force number is not in the scope, it is unqualified. If the standard joint does not pass the screw thread and fork end, it is eligible.

5.15.4 Printing format

5.16 Choose anti-slippery injector needle in the main menu:
5.16.1 Use number 8 cone joint, install it and screw tightly.
5.16.2 Install tested injector needle according to 3.2 and 4.2.
5.16.3 Press [Test] in the main menu, screen displays.

others are the same as 4.5.3
5.16.4 printing format
others are the same as 4.5.3

5.17 Choose stress cracking and injector in the main menu:
5.17.1 Use number 0 cone joint, install it and screw tightly. put number 1 detachable inner cone joint in the number 0 joint.
5.17.2 Install tested injector needle according to 3.2 and 4.2.
5.17.3 Press Test in the main menu, screen displays.

When axial force reaches 27.5N~28.0N, torsional moment reaches 0.12 N·m ~0.125 N·m, hold for 5S. if the force number is not in the scope, it is unqualified, press Exit from Test, remove number 1 joint with tested injector, keep it for 48h±1h in 20℃±5℃ enviroment, thhere should be no stress cracking phenomenon of joint.
5.18 Choose stress cracking and injector needle in the main menu:
5.18.1 Use number 0 cone joint, install it and screw tightly. put number 2 detachable exterior cone joint in the number 0 joint.
5.18.2 Install tested injector needle according to 3.2 and 4.2.
5.18.3 Press [Test] in the main menu, screen displays.

5.18.4 Printing format

**Others are the same as 4.5.3**
6 Notice:
6.1 Operators must be familiar with GB/T1962.1-2005 and operation instruction.
6.2 If there is failure in testing process, press Exit from Test, anew the test after removing failure.
6.3 If there is twist in the torsional moment sensor (at the left of the standard joint), remove the twist, the sensor should avoid striking.
6.4 The fixed measure period of the tester is one year.
6.5 This test has guarantee of repair; replacement and refund of substandard products. The term is one year.

7 Components:
7.1 ZD 1962-T Conical Fitting with a 6% (Luer) Taper Multipurpose Tester
    7.2 One empty compressor
    7.3 One power cord with three cores
    7.4 Two tester pipes
    7.5 Five printers
    7.6 Twelve standard joints
       Number 0 detachable joint
          Number 1 detachable standard inner cone joint
          Number 2 detachable standard exterior cone joint
          Number 3 standard inner cone joint and standard exterior cone joint
          Number 5 standard inner cone joint
          Number 6 standard inner cone joint for testing separating force and anti-slippery.
          Number 7 standard exterior cone joint
          Number 8 standard exterior cone joint for testing separating force and anti-slippery
          Number 10 detachable joint
          Number 11 standard exterior cone joint
          Number 12 detachable standard inner cone joint and standard exterior cone joint
          Number 13 standard inner cone joint
    7.7 One operation instruction
    7.8 One certificate of approval
    7.9 One verification document
7.10 One height adjusting shelf for measuring torsional moment.
7.11 One weights putting shelf for measuring torsional moment.
Follow-Up Service:
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Mold Production
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Automated Assembly Equipment
Add.: State Hi-Tech. Ind. Development Area, Wuxi, Jiangsu, China