



LMP 60

PRESSURE PNEUMATIC TEST PUMPS

MANUAL



INSTRUMENTS
leyro

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TABLE OF CONTENTS

1. BEFORE YOU START

1.1. Symbology

1.2. Safety instructions

2. FUNCTIONS

2.1. Characteristics

2.2. Components

2.3. Working principle

3. TECHNICAL SPECIFICATIONS

4. OPERATING PROCEDURE

5. TROUBLE SHOOTING

6. MAINTENANCE

1. BEFORE YOU START

Leyro's Pressure pneumatic comparator Model LMP 60 is portable structure and designed to generate pressure from vacuum to 60bar. The F-adjust valve could accomplish 0.1mbar (10Pa) pressure resolution. Especially the lever lead screw design makes user operate in economize labor. The design of reverse valve makes the switch of vacuum and positive pressure more smooth. Two standard pressure outputs are easy to connect gauges under test without using the wrenches. It widely calibrates pressure instruments in field and laboratory.

1.1 Symbology



This symbol indicates safety instructions.

These safety instructions must be followed carefully. Failure to heed these instructions for personal injury or property damage that could happen.

Therefore Leyro ® is not responsible for.



This symbol indicates a note. These notes should be observed to achieve the optimal performance of the equipment.

1.2 Safety instructions



Read this manual carefully before using the instrument.

Please follow the instructions and procedures described in this manual. They are designed to allow you to get the most out of your calibrator and avoid any personal injuries and /or damage to the instrument.

- (1) The system must only be operated by trained and authorised personnel who know the manual and can work according to them.
- (2) Any operation not included in the following instructions or outside the specifications must not be attempted.
- (3) Don't use the product if it is damaged.
- (4) Disassembling may cause physical injury or equipment damage. Only qualified technicians are allowed to fix the equipment. Please call our service staff for repair instruction and guidance if there would be anything wrong.
- (5) The item belongs to non-oil equipment, if you use the item to calibrate oil gauge, there will be oil left behind in the system, and it will not provide pressure anymore. Meanwhile that may pollute air gauge.
- (6) If this equipment will be in idle for a long time, please close the relieve valve and provide pressure about 2bar. In order to avoid the air enter into the item inside, that will affect the system stability when you use it next time.
- (7) Don't switch the reverse valve (positive/vacuum) when there is pressure inside the system. If you switch the reverse valve when the whole system have pressure, maybe the hand pump will spring up and cause personal hurt.
- (8) If the item left idle, please operate the reverse valve once each month. Or the reverse valve couldn't be use, at this time, please call our service clerk.

2. FUNCTIONS

LMP 60 provides pressure measurement for calibrating pressure instruments in field and laboratory. It can be extensively used in power, chemical, petrol, metallurgy, metering, military industry, etc.

2.1 Characteristics

- Portable structure
- User operate in economize labor

2.2 Components

1. Hand pump

Generate pressure about 10-12bar by run the hand pump up and down repeatedly. Hand pump will realize prepressing function.

2. Lead screw

Increase pressure by turning the lead screw clockwise, decrease pressure by turning the lead screw anti-clockwise.

3. Reverse valve (positive/ vacuum)

Press the button in order to switch between positive pressure and vacuum. (Push the reverse is positive pressure calibration, pull for vacuum).

4. Relieve valve

Have to close before pressure generation (clockwise). Slowly Open it to relieve the pressure (anti-clockwise).

5. F-adjust valve

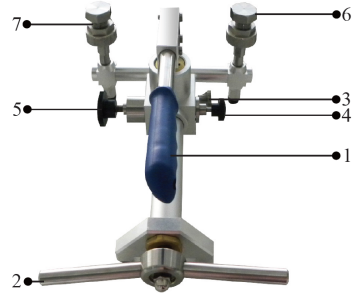
To realize the fine adjustment of pressure value (Turning in clockwise to increase pressure).

6. Plugs

Tighten it up when not in use.

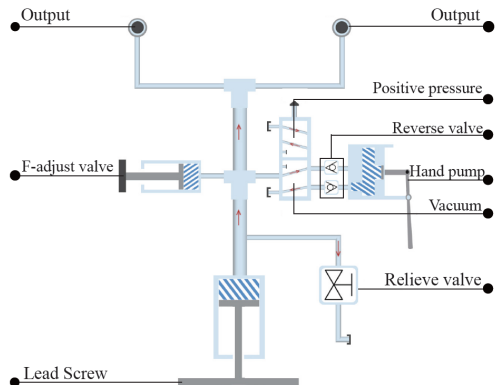
7. Output

There are two outputs. one is designed for standard gauge, the other for gauge under test.



2.2 Working principle

LMP 60 is composed of hand pump, lead screw, F-adjust valve, relieve valve, reverse valve, outputs, etc. The pressure gauge can be installed quickly. Push or pull reverse valve to switch positive pressure position and vacuum position. It is easy to prepressurize by running hand pump up and down, then compress the work medium by turning lead screw clockwise (anticlockwise), that could realize pressure increasing (decreasing) secondary. Fine adjust the F-adjust valve to reach desired point more accurately.



3. TECHNICAL SPECIFICATIONS

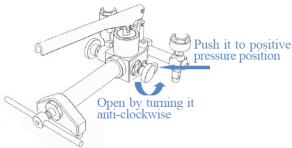
Range	-0.95 ... 40 bar, -0.95 ... 60 bar
Medium	Air
Adjust resolution	0.1mbar (10Pa)
Output Interface connection	M20x1.5 female
Weight	2.7 Kg.
Dimension	286 × 198 × 140mm (L×D×H)

4. OPERATING PROCEDURE

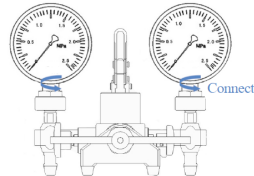
1. Example 1:

Take pressure gauge 25bar as example (The calibration points: 0bar, 5bar, 10bar, 15bar, 20bar, 25bar)

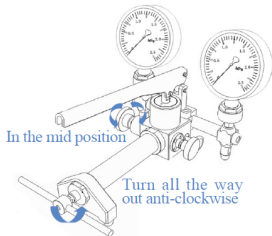
1- Put LMP 60 on the level; Turn the relieve valve anti-clockwise to open it and make sure the reverse valve is in positive pressure position.



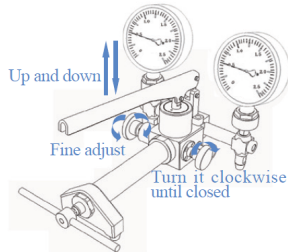
2- Remove the plugs of outputs. Connect the standard gauge and the gauge under test to the two outputs interfaces separately, it must firm in place. Otherwise, it will be leakage.



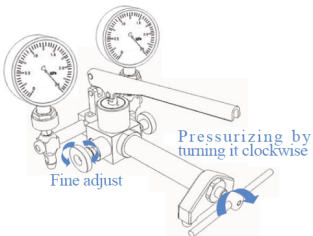
3- Set F-adjust valve to the mid position, and for lead screw, turn all the way out.



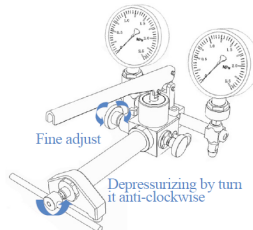
4- Record 0bar record and close the relieve valve. Providing pressure about 4 bar by hand pump up and down, then adjust the F-adjust valve to second calibration point (5bar).



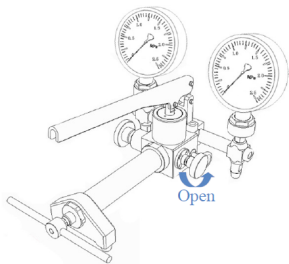
5- Rotate the lead screw clockwise to make pressure value close to next calibration points, and adjust F-adjust valve to get exact values. Pressure rising & stabilize to 10bar, 15bar, 20bar, 25bar in turn. Meanwhile, record the data.



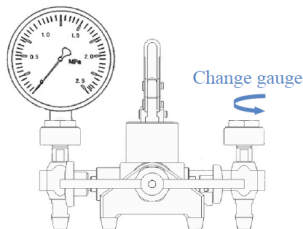
6- Loop calibration: Decrease pressure by turning lead screw anti-clockwise (or together with relieve valve), and adjust the F-adjust valve to get exact values. Record the data when the pressure stabilize on 20bar, 15bar, 10bar, 5bar and so on.



7- Finish the loop calibration and open the relieve valve to release the pressure.



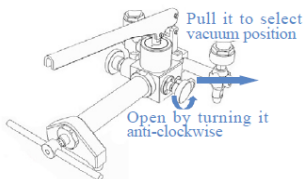
8- Change gauge under test and calibrate the next one.



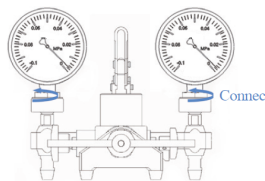
2. Example 2:

Take vacuum pressure gauge as example (The calibration points: 0bar,-0.2bar, -0.4bar, -0.6bar, -0.8bar, -0.95bar)

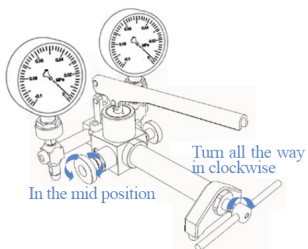
1- Put LMP 60 on the level; Turn the relieve valve anti-clockwise to open it and make sure the reverse valve is in vacuum position.



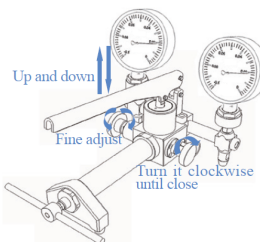
2- Remove the plugs of outputs. Connect the standard gauge and the gauge under test to the two outputs interfaces separately, it must firm in place. Otherwise, it will be leakage.



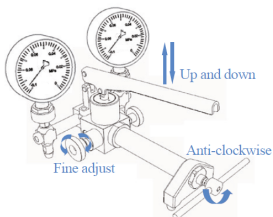
3- Set F-adjust valve to the mid position, and for lead screw, turn all the way in.



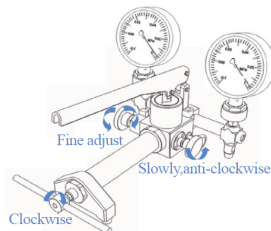
4- Record 0bar record and close the relieve valve. Providing pressure by hand pump and leading screw let pressure near -0.2bar, then adjust the F-adjust valve to get exact pressure value.



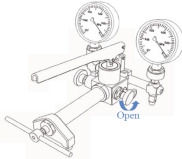
5- Use the hand pump leading screw and F-adjust valve to calibrate other calibration point(-0.4bar,-0.6bar,-0.8bar).If the pressure value is up to -0.92bar,pls create negative pressure by turning lead screw anticlockwise until full scale.



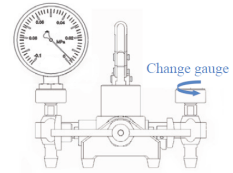
6- Loop calibration: Turning lead screw clockwise (or together with relieve valve), and adjust the F-adjust valve to get exact values. Record the data when the pressure stabilize on -0.8bar,-0.6bar,-0.4bar, -0.2bar and so on.



- Finish the loop calibration and open the relieve valve to release the pressure.



- Change gauge under test and calibrate the next one.



- Hold the lead screw, turn in and out slowly to complete fine adjustment
- Please put on the plugs after all the tests have been finished.
- Above pictures are just for reference.

NOTE:

- There must be no pressure in the system when removing pressure gauge
- Replace the O-rings regularly
- The item is non-oil equipment, please don't mix any liquid.
- The reverse valve should be switched the correct position before the pressure generating. Otherwise, that will leak and do not generate pressure.

5. TROUBLE SHOOTING

FAULTS	CAUSE	SOLUTION
Leakage	The reverse valve (positive / vacuum) is not in the right position	Push/pull the reverse valve to the right position
The hand pump is up	There is impurity in the instrument	Disassembling and cleaning
Hand pump couldn't generate pressure	The reverse valve (positive / vacuum) is not in the right position	Push/pull the reverse valve to the right position
The pressure is instability, the standard gauge depressurized quickly	Check the instrument to make urethere is no leakage of air. Otherwisethe O-ring is damaged or there isconnection loosening	Replace O-ring,or reconnect the instrument
	Pressurize without gauge undertest.if the instrument doesn't leak pressure, this indicates problem with gauge under test. Otherwise there is problem with device or tandardgauge. Check the gauge and device separately	Replace standard gauge or gauge under test

6. MAINTENANCE

1. If this equipment will be in idle for a long time, please turn the lead screw clockwise till it could not move anymore, close the relieve valve and put on the plugs. Provide pressure about 2bar by running the hand pump.
2. If LMP 60 needs to take a long distance transport, please put on all plugs to prevent leakage of work medium. It is necessary to pack with specialized cartons and foam wrap.
3. The item belongs to non-oil equipment, It is forbidden to calibrate oil gauge. Operate the lead screw and hand pump regularly.

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