AUTOOL LM150

AUTOOL Digital Refrigeration Manifold Gauge LM150 User Manual

Model: LM150

1. Product Overview

The AUTOOL LM150 Digital Refrigeration Manifold Gauge is a professional instrument designed for precise measurement of pressure and temperature in refrigeration and air conditioning systems. It offers advanced features for comprehensive system analysis, including condensing pressure and temperature measurement, pressure maintaining, and leakage testing.

Key functionalities include:

- HP/LP line temperature and pressure measurement.
- Evaporation and condensing temperature measurement.
- Support for 93 types of refrigerants.
- Refrigerant system evacuation and vacuum pressure measurement.
- Leakage pressure measurement and time record.
- Multi-unit automatic conversion for pressure and temperature.

Image: Display showing various functions and measurements of the LM150.

This image illustrates the main display of the AUTOOL LM150, highlighting its capability to show HP/LP line temperature and pressure, evaporation and condensing temperatures, and the selected refrigerant type. It visually confirms the device's multi-functional display for comprehensive system diagnostics.

2. Package Contents

Upon opening the package, please verify that all components are present and in good condition. The standard package for the AUTOOL LM150 includes:

- 1 x AUTOOL LM150 Digital Refrigeration Manifold Gauge
- 1 x Hard Carrying Case
- 3 x Refrigerant Hoses (Red, Yellow, Blue)
- 2 x Temperature Clamp Probes
- 1 x User Manual
- Necessary Adapters/Connectors

Image: All items included in the AUTOOL LM150 package.

This image displays the complete set of items provided with the AUTOOL LM150, including the main unit, the protective carrying case, color-coded refrigerant hoses, and temperature clamp probes. It serves as a visual checklist for users to confirm all components are present.

3. Product Features and Components

The LM150 is designed with user convenience and accuracy in mind. Familiarize yourself with its key features and components:

- **3.5-inch High-Definition Display:** A backlit screen ensures clear readability even in low-light conditions. The display organizes test results intuitively.
- **V-Shape Ball Valve Opening Design:** This design allows for easy and precise control of the valve switch, offering improved durability and simpler operation compared to traditional knob valves.
- **High-Quality Material:** Constructed with a sturdy housing and an IP54 protection rating, featuring a flexible non-slip silicone design for a comfortable and secure grip.
- **Clip-on Probes:** Two wired temperature clamp probes are included for real-time evaporation and condensing temperature measurements.

- **Built-in Refrigerant Database:** Contains data for 93 NIST standard refrigerants, allowing for accurate calculations and measurements across a wide range of systems.

Image: Close-up of the LM150's 3.5-inch high-definition display.

This image focuses on the LM150's large, clear display, emphasizing its readability and the organized presentation of measurement data, crucial for quick and accurate readings in various working environments.

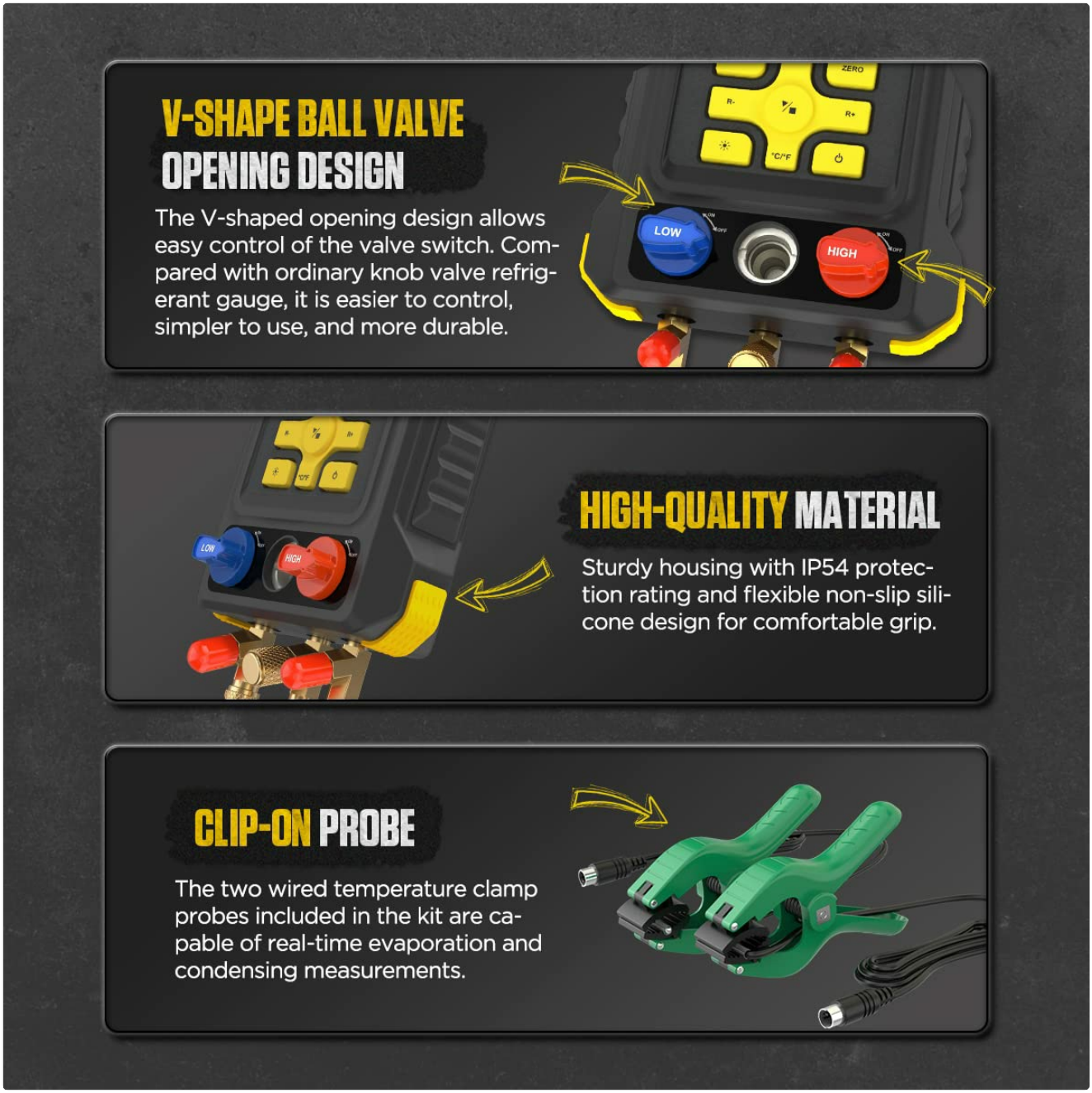


Image: Detailed view of the V-shape ball valve, high-quality material, and clip-on probes.

This image provides a closer look at the innovative V-shape ball valve design, highlighting its ease of control. It also showcases the robust construction materials and the practical clip-on temperature probes, illustrating the thoughtful engineering behind the device's components.

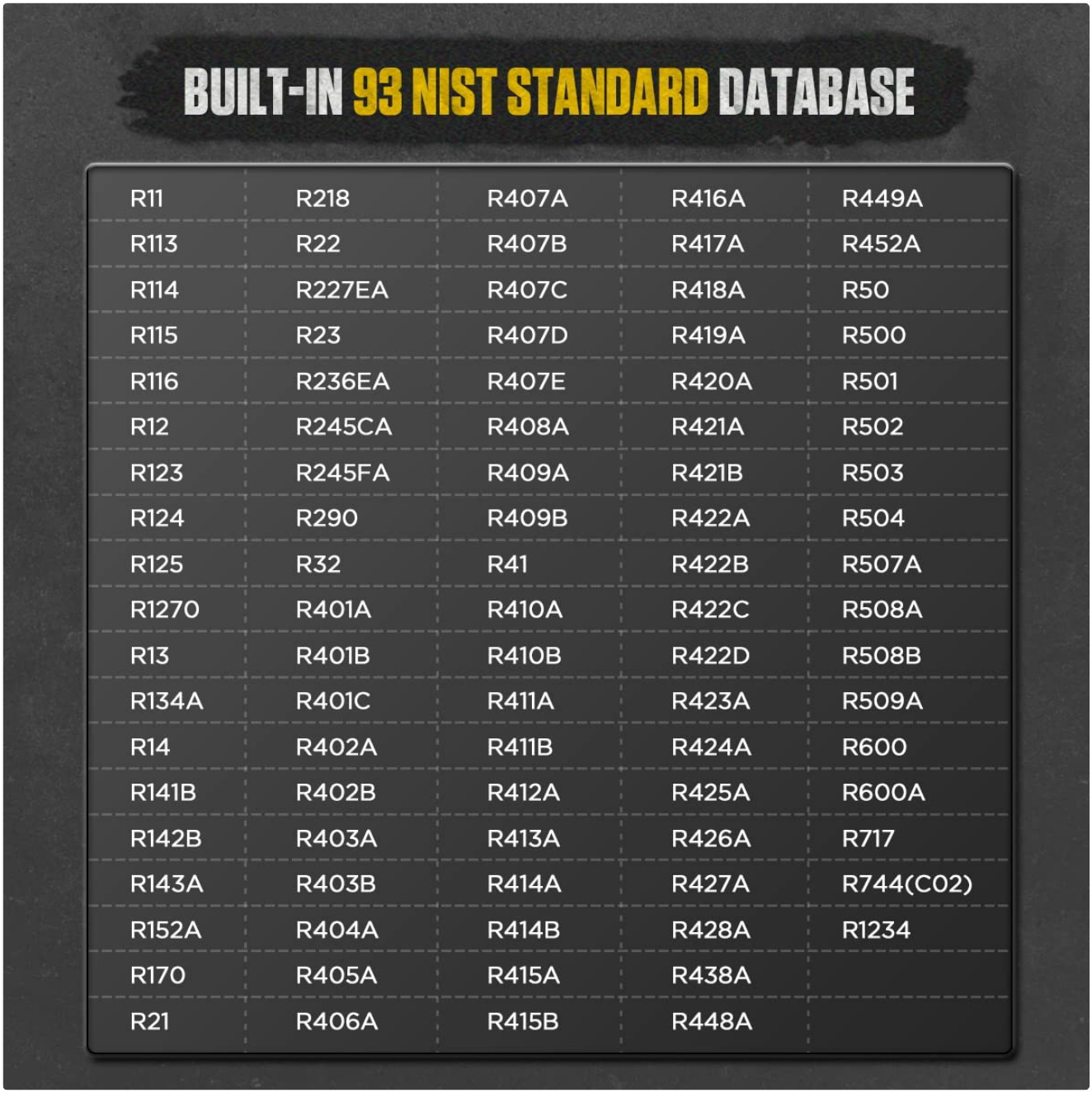


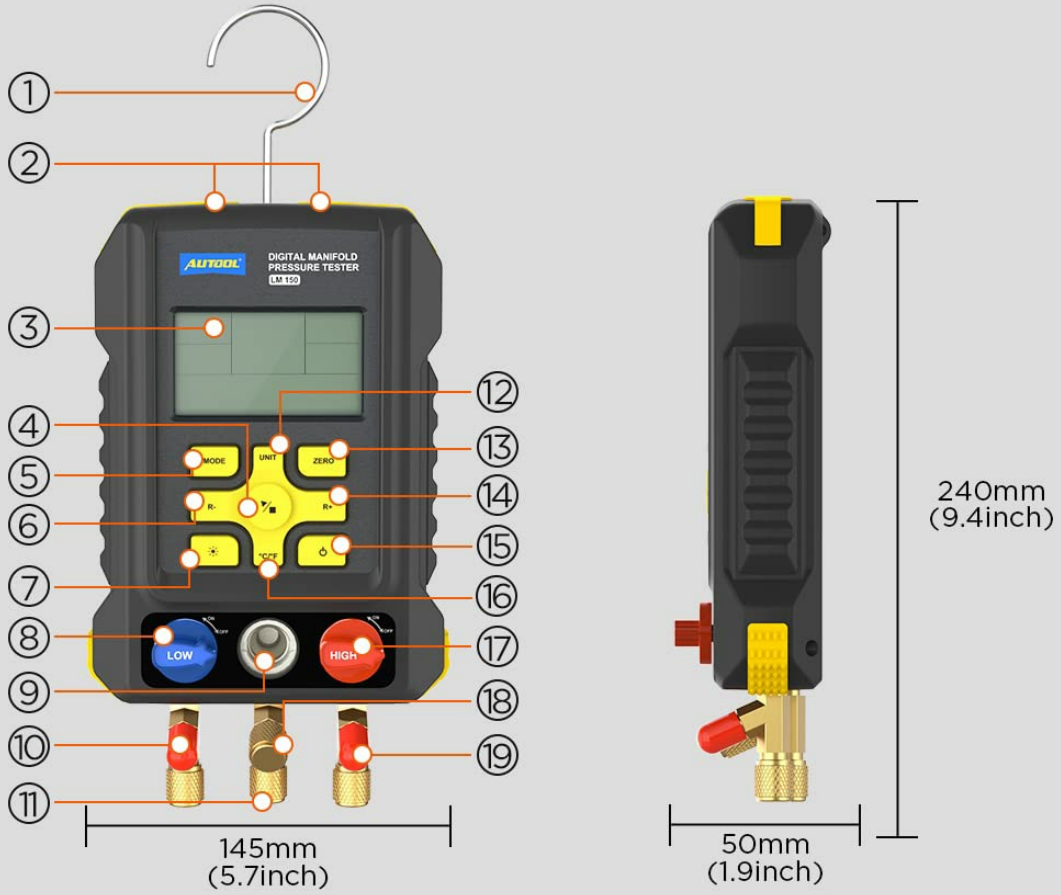
Image: List of 93 built-in NIST standard refrigerants.

This image presents a comprehensive list of the 93 NIST standard refrigerants pre-programmed into the LM150's database. This feature allows the device to accurately calculate and display properties for a wide variety of common and specialized refrigerants, enhancing its versatility for professional use.

4. Setup and Connections

Before operating the LM150, ensure proper setup and connection of all necessary components.

4.1 Device Layout and Controls



① Hook	② Clamp-on temperature probe socket
③ LCD display	④ Run/Stop button
⑤ Mode button	⑥ R- refrigerant type selection buttons
⑦ Backlight button	⑧ Low pressure valve
⑨ Refrigerant observation window	⑩ 1/4 inch low pressure inlet
⑪ Refrigerant inlet/vacuum pump inlet	⑫ Pressure unit switch button
⑬ Zero button	⑭ R+ refrigerant type selection buttons
⑮ Power button	⑯ °C/°F button
⑰ High pressure valve	⑱ Pressure release valve
⑲ 1/4 inch high pressure inlet	

Image: Labeled diagram of the AUTOOL LM150 with component descriptions.

This detailed diagram provides a clear visual guide to all external components and controls of the AUTOOL LM150. Each part is numbered and corresponds to a descriptive legend, aiding users in identifying ports, buttons, and features for correct operation and connection.

1. **Hook:** For hanging the unit during operation.
2. **Clamp-on temperature probe socket:** Connect temperature probes here.
3. **LCD display:** Shows all measurement data and settings.
4. **Run/Stop button:** Initiates or pauses measurements.
5. **Mode button:** Cycles through different measurement modes.
6. **R- refrigerant type selection buttons:** Decreases refrigerant type number.
7. **Backlight button:** Toggles display backlight.

8. **Refrigerant observation window:** Visual check of refrigerant flow.
9. **Refrigerant inlet/vacuum pump inlet:** Central port for vacuum pump or refrigerant charging.
10. **1/4 inch low pressure inlet:** Connects to the low-pressure side of the system.
11. **Zero button:** Resets pressure readings.
12. **Pressure unit switch button:** Changes pressure units (kPa, MPa, bar, inHg, PSI).
13. **Power button:** Turns the device on/off.
14. **R+ refrigerant type selection buttons:** Increases refrigerant type number.
15. **High pressure valve:** Controls flow to the high-pressure side.
16. **°C/°F button:** Toggles temperature units.
17. **Low pressure valve:** Controls flow to the low-pressure side.
18. **Pressure release valve:** For safely releasing pressure.
19. **1/4 inch high pressure inlet:** Connects to the high-pressure side of the system.

4.2 Initial Setup

- **Power On:** Press the **Power** button to turn on the device.
- **Unit Selection:** Use the **UNIT** button to select desired pressure units (kPa, MPa, bar, inHg, PSI) and the **°C/°F** button for temperature units.
- **Refrigerant Type Selection:** Use the **R-** and **R+** buttons to select the specific refrigerant type being used in the system.
- **Zeroing Pressure:** Ensure all hoses are disconnected from the system and the valves on the manifold are closed. Press the **ZERO** button to calibrate the pressure sensors to zero.

4.3 Connecting Hoses and Probes

- Connect the **red hose** to the 1/4 inch high pressure inlet on the LM150 and to the high-pressure service port of the refrigeration system.
- Connect the **blue hose** to the 1/4 inch low pressure inlet on the LM150 and to the low-pressure service port of the refrigeration system.
- Connect the **yellow hose** to the refrigerant inlet/vacuum pump inlet on the LM150. This hose is typically used for vacuuming, charging, or connecting to a recovery unit.
- Plug the **temperature clamp probes** into the clamp-on temperature probe sockets. Attach the probes securely to the high and low-pressure lines to measure pipe temperatures.

5. Operating Instructions

The LM150 offers various modes for different diagnostic and service procedures.

5.1 Basic Pressure and Temperature Measurement

1. Ensure the LM150 is powered on and correctly connected to the system.
2. Open the high and low-pressure valves on the manifold to allow refrigerant flow to the gauge.
3. The display will show real-time HP/LP pressure and corresponding saturation temperatures based on the selected refrigerant.
4. The temperature probes will display the actual pipe temperatures.

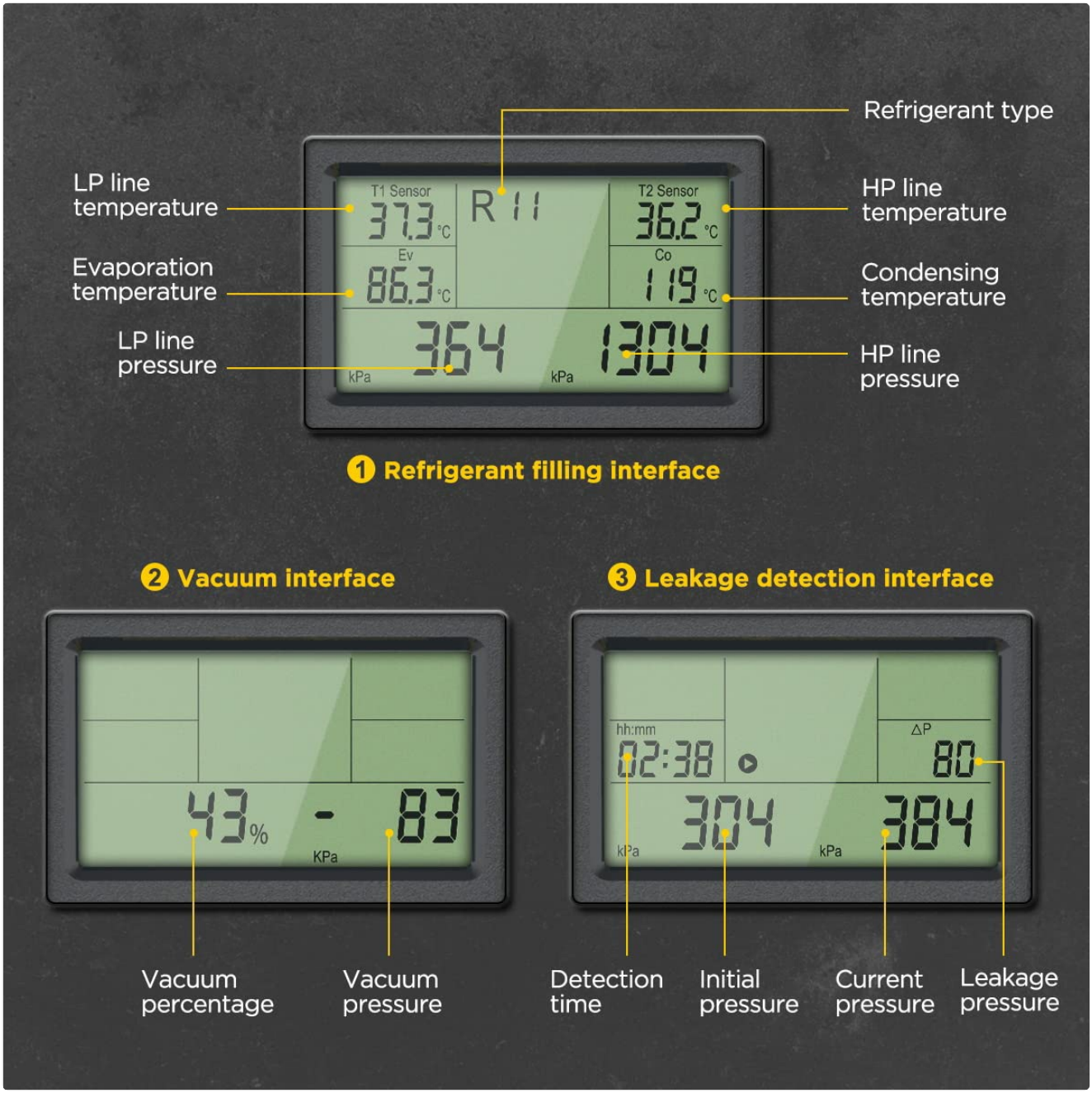


Image: Examples of different display screens for refrigerant filling, vacuum, and leakage detection.

This image illustrates the versatility of the LM150's display, showing how it presents data for various operations. It includes views for refrigerant filling (showing HP/LP pressure and temperatures), vacuum measurement (displaying vacuum percentage and pressure), and leakage detection (showing detection time, initial pressure, current pressure, and leakage pressure difference). This visual guide helps users understand the information presented during different diagnostic tasks.

5.2 Condensing Pressure and Temperature Measurement

This function measures the minimum pressure when refrigerant changes from gas to liquid and the maximum temperature during this phase change. Lower condensing pressure and temperature indicate higher refrigeration cycle efficiency.

1. Connect the LM150 to the system as described in Section 4.3.
2. Ensure the system is operating.
3. The LM150 will automatically calculate and display the condensing pressure and temperature based on the high-pressure readings and selected refrigerant.

5.3 Pressure Maintaining and Leakage Test

This test determines if the refrigerant system has a leak by calculating the pressure difference over time.

1. After evacuating or charging the system, close all manifold valves.
2. Select the leakage test mode using the**MODE** button.
3. The device will record the initial pressure and monitor pressure changes over a set period.
4. The display will show the detection time, initial pressure, current pressure, and the calculated leakage pressure difference.
5. A significant pressure drop indicates a leak.

5.4 Refrigerant System Evacuation

1. Connect the yellow hose to a vacuum pump and the system's service port (usually the low-pressure side).
2. Open the low-pressure valve on the manifold.
3. Start the vacuum pump.
4. Monitor the vacuum pressure and percentage on the LM150 display. Continue evacuation until the desired vacuum level is reached.
5. Close the manifold valve and turn off the vacuum pump. Observe the vacuum reading for any rise, which would indicate a leak.

6. Maintenance

Proper maintenance ensures the longevity and accuracy of your AUTOOL LM150.

- **Cleaning:** Wipe the device with a soft, damp cloth. Do not use abrasive cleaners or solvents. Ensure no liquid enters the ports or display.
- **Storage:** Store the LM150 in its protective carrying case in a cool, dry place away from direct sunlight and extreme temperatures.
- **Hose Care:** Inspect hoses regularly for cracks, wear, or damage. Replace damaged hoses immediately to prevent refrigerant leaks and ensure accurate readings.
- **Battery:** If the device uses replaceable batteries, ensure they are removed if the unit will not be used for an extended period to prevent leakage.
- **Calibration:** While the LM150 is factory calibrated, periodic professional calibration may be required for critical applications or if accuracy is suspected to be compromised.

7. Troubleshooting

This section addresses common issues you might encounter with the LM150.

Problem	Possible Cause	Solution
Device does not power on.	Low or dead batteries; incorrect battery installation.	Replace batteries with new ones; ensure correct polarity.
Inaccurate pressure readings.	Hoses not properly connected; manifold valves not fully open/closed; unit not zeroed; damaged sensor.	Check hose connections; ensure valves are in correct position; perform zero calibration; contact support if sensor damage is suspected.
Temperature probes not reading.	Probes not securely plugged in; damaged probe cable/sensor.	Ensure probes are fully inserted; inspect cable for damage; replace probe if faulty.

Problem	Possible Cause	Solution
Display is dim or unreadable.	Backlight off; low battery.	Press the backlight button; replace batteries.
Cannot select desired refrigerant.	Incorrect mode; button malfunction.	Ensure you are in the correct mode for refrigerant selection; try cycling power.

8. Technical Specifications

Detailed specifications for the AUTOOL LM150 Digital Refrigeration Manifold Gauge:

Image: Table of technical parameters for the AUTOOL LM150.

This image provides a clear and concise table detailing the technical specifications of the AUTOOL LM150. It includes critical data such as pressure test range, resolution, accuracy, overload limit, vacuum test parameters, and temperature test range, resolution, and accuracy. This information is essential for understanding the device's capabilities and limitations.

Parameter	Value
Pressure Test Type	Gauge pressure
Pressure Test Units	kPa, MPa, bar, inHg, PSI
Pressure Test Range	0 Kpa - 6000 Kpa
Pressure Test Resolution	1 Kpa
Pressure Test Accuracy	+/- 0.5 %(FS)+ 5dgt
Pressure Overload Limit	10000 Kpa (10 Mpa; 100 bar;)
Vacuum Test Type	Relative vacuum
Vacuum Test Units	Kpa; Mpa; bar; inHg; PSI
Vacuum Test Range	-101 Kpa ~ 0 Kpa
Vacuum Test Resolution	1 Kpa
Temperature Test Units	°C (Celsius), °F (Fahrenheit)

Parameter	Value
Temperature Test Range	-40°C ~ 150°C (-40°F ~ 302°F)
Temperature Test Resolution	0.1°C (-40°C ~ 99.9°C), 1°C (100°C ~ 150°C); 0.1°F (-40°F ~ 99.9°F), 1°F (100°F ~ 302°F)
Temperature Test Accuracy	+/- 0.5 °C + 2dgt, +/- 0.9 °F + 2dgt
Product Dimensions	36.83 x 29.97 x 10.92 cm; 3.7 kg
Display Size	14.5 Inches (diagonal)
Material	Metal

9. Warranty and Support

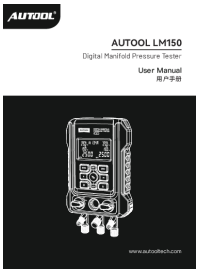
AUTOOL provides comprehensive support for its products.

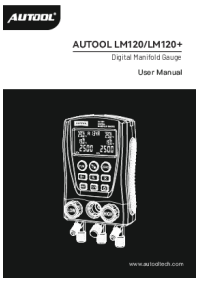
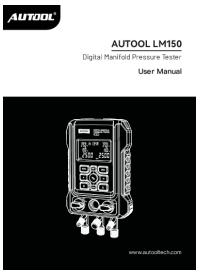
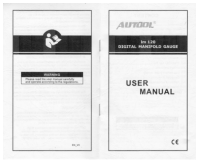
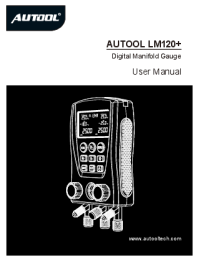
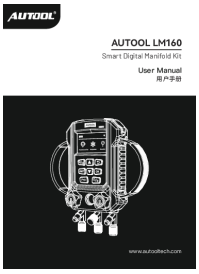
- **Warranty:** The product comes with a 3-year warranty. Please refer to the official AUTOOL warranty policy for detailed terms and conditions.
- **Customer Support:** For technical assistance, troubleshooting not covered in this manual, or warranty claims, please contact AUTOOL customer support.
- **Online Resources:** Visit the official AUTOOL website or their Amazon brand store for additional resources, FAQs, and product updates.AUTOOL Amazon Store

Image: AUTOOL warranty and support information.

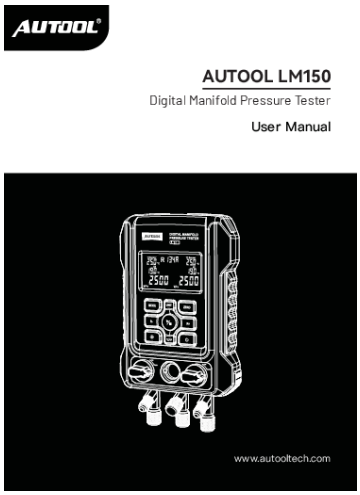
This image, while primarily showing technical parameters, also implicitly represents the brand's commitment to quality and support, which is often associated with detailed specifications and reliable products. For explicit warranty details, users should refer to the official warranty statement.

Related Documents - LM150

	AUTOOL LM150 Digital Manifold Pressure Tester User Manual - HVAC Refrigerant Tool Comprehensive user manual for the AUTOOL LM150 Digital Manifold Pressure Tester. Covers product specifications, operating instructions for refrigerant filling, vacuum, and leak testing, common problems, glossary of terms, maintenance, warranty, and return policy for HVAC and refrigeration professionals.

	[AUTOOL LM120/LM120+ Digital Manifold Gauge User Manual] This user manual provides comprehensive guidance for the AUTOOL LM120/LM120+ Digital Manifold Gauge. It details product specifications, structure, function instructions for refrigerant filling, vacuum operation, and pressure leak testing. The manual also includes common problems, a glossary of terms, maintenance advice, warranty information, and return/exchange procedures. Essential for HVAC technicians and refrigeration professionals.
	[AUTOOL LM150 Digital Manifold Pressure Tester User Manual] User manual for the AUTOOL LM150 Digital Manifold Pressure Tester, providing detailed instructions, specifications, safety guidelines, and troubleshooting for HVAC and refrigeration system testing.
	[AUTOOL Im 120 Digital Manifold Gauge User Manual] Comprehensive user manual for the AUTOOL Im 120 Digital Manifold Gauge, detailing its features, specifications, operation instructions for refrigerant filling, vacuum testing, leak detection, safety precautions, common problems, and a glossary of terms relevant to refrigeration systems.
	[AUTOOL LM120+ Digital Manifold Gauge User Manual] Comprehensive user manual for the AUTOOL LM120+ Digital Manifold Gauge, detailing its features, specifications, safety precautions, operating instructions, and troubleshooting tips for refrigeration and HVAC systems.
	[AUTOOL LM160 Smart Digital Manifold Kit User Manual] Comprehensive user manual for the AUTOOL LM160 Smart Digital Manifold Kit, covering operation, technical specifications, maintenance, and safety for HVAC applications.

Documents - AUTOOL – LM150



AUTOOL LM150 Digital Manifold Pressure Tester User Manual

User manual for the AUTOOL LM150 Digital Manifold Pressure Tester, providing detailed instructions, specifications, safety guidelines, and troubleshooting for HVAC and refrigeration system testing.

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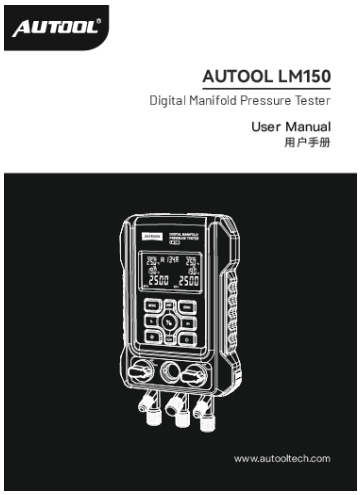

AUTOOL LM150 Digital Manifold Pressure Tester User Manual - HVAC Refrigerant Tool

Comprehensive user manual for the AUTOOL LM150 Digital Manifold Pressure Tester. Covers product specifications, operating instructions for refrigerant filling, vacuum, and leak testing, common problems, glossary of terms, maintenance, warranty, and return policy for HVAC and refrigeration professionals.

lang:en score:39 filesize: 3.57 M page_count: 21 document date: 2023-07-14