

FLUKE®

Fluke HVAC/R Solutions



Gas heat solutions

Air temperature difference

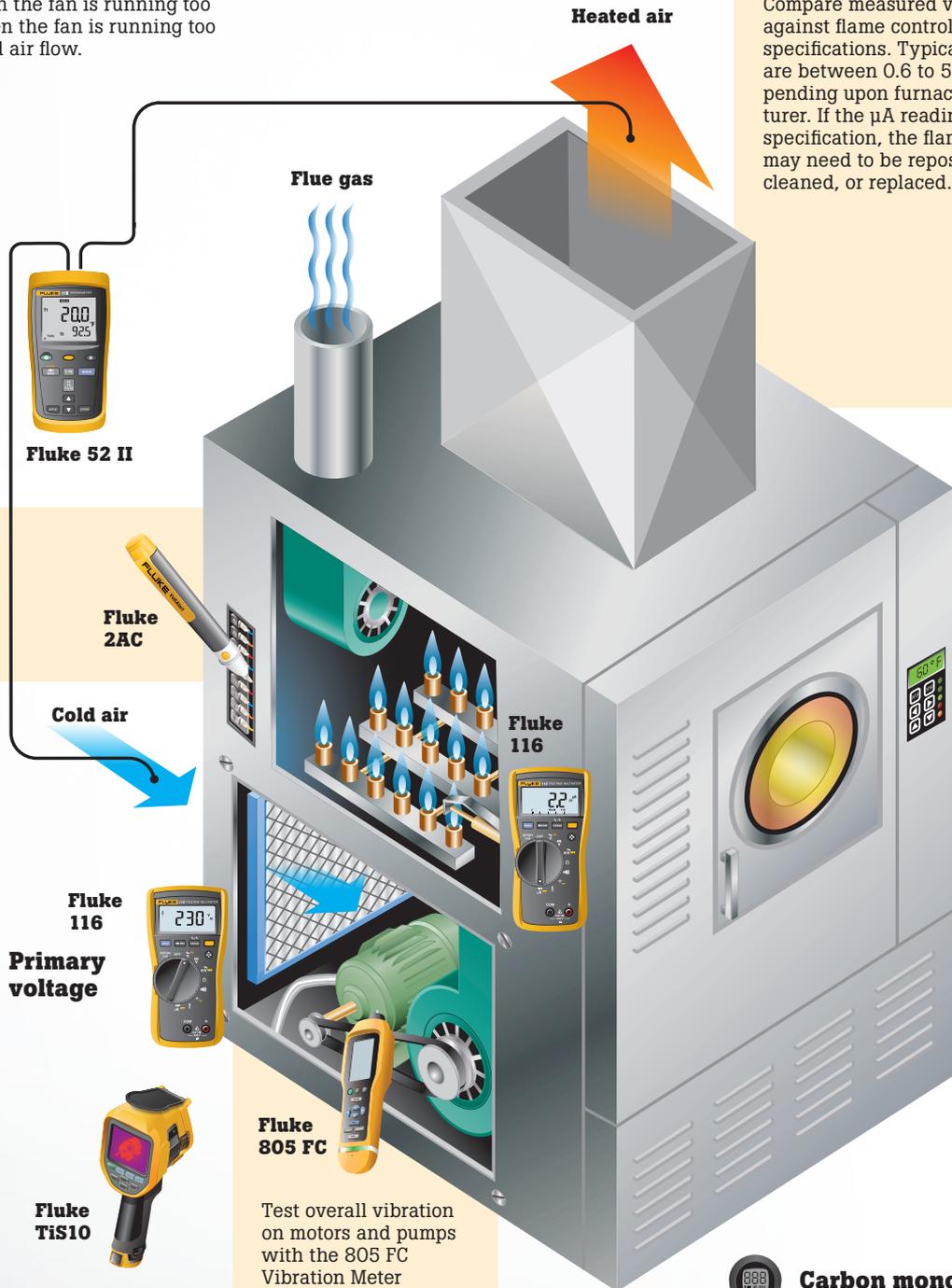
Check the temperature difference across the heat exchanger with the Fluke 52 II, with the burner working. Expect a 40-75 °F temperature difference (TD). If the TD is low, then the fan is running too fast. If the TD is high, then the fan is running too slow or there is restricted air flow.

Flame rod μA test

Verify proper operation of the flame rectification circuit with the Fluke 116 in the μA mode. Compare measured value against flame control module specifications. Typical values are between 0.6 to 5.0 μA depending upon furnace manufacturer. If the μA reading is below specification, the flame rod may need to be repositioned, cleaned, or replaced.

Control voltage

Use the VoltAlert 2AC to test for energized 24 V ac contacts.



Fluke 52 II

Fluke 2AC

Fluke 116
Primary voltage

Fluke 805 FC

Fluke TiS10

Test overall vibration on motors and pumps with the 805 FC Vibration Meter

Fluke 116



CO-220

Carbon monoxide

Use the Fluke CO-220 to check for CO leaks around the heat exchanger, flue and other points within a building.



Fluke TiS10 Infrared Camera

Easy to use, point and shoot entry level infrared camera with 80x60 resolution—ideal for quick scans and inspections.



Fluke 52 II Dual Input Digital Thermometer

The Fluke 52 Series II Thermometer provides high accuracy and performance in one of the most advanced, yet affordable dual input thermometers in the industry. Compatible with any J, K and many other type thermocouples. Ideal for differential temperature measurement.



Fluke CO-220 Carbon Monoxide Meter

The CO-220 Carbon Monoxide Meter allows quick and reliable testing for carbon monoxide. The unit is easy to use with a large display and automatic backlight. An audible beeper ticks faster as the CO level increases. Accurately measures from 0 to 1000 PPM of carbon monoxide.



Fluke 805 FC Vibration Meter

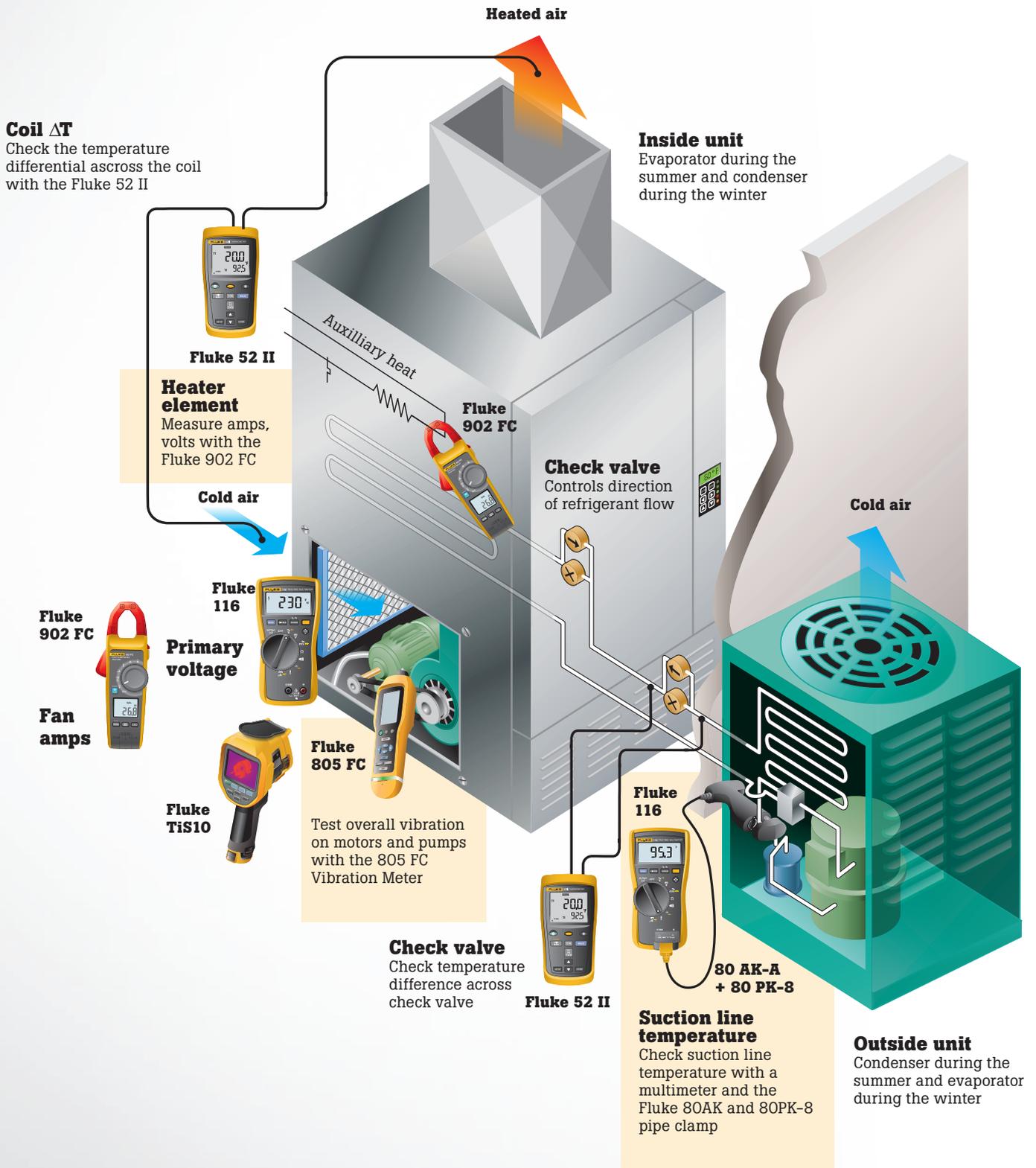
The reliable, repeatable, accurate way to check bearings and overall vibration and stay in contact with your team using Fluke Connect with ShareLive™.



Fluke 2AC VoltAlert™

The 2AC is the latest addition to the VoltAlert™ AC non-contact voltage tester family from Fluke and is designed to be pocket-sized and easy to use. The 2AC tests for energized circuits and defective grounds, whether it's for an electrician on the factory floor or the do-it-yourselfer around the house.

Heat pump solutions





Fluke TiS10 Infrared Camera

Easy to use, point and shoot entry level infrared camera with 80x60 resolution—ideal for quick scans and inspections.



Fluke 116 Digital Multimeter

With the ability to take temperature and microamp measurements, the Fluke 116 Digital Multimeter has everything you need to help you quickly troubleshoot problems with HVAC equipment and flame sensors. The Fluke 116 measures resistance, continuity, frequency and capacitance.



Fluke 52 II Dual Input Digital Thermometer

The Fluke 52 Series II Thermometer provides high accuracy and performance in one of the most advanced, yet affordable dual input thermometers in the industry. Compatible with any J, K and many other type thermocouples. Ideal for differential temperature measurement.



Fluke 902 FC True-rms HVAC Clamp Meter

The Fluke 902 FC True-rms HVAC Clamp Meter, a wireless Fluke Connect®-enabled meter, improves the productivity of HVAC technicians in the field. The rugged dual rated—CAT III, 600 /CAT IV, 300 V—meter performs the essential measurements of HVAC systems.



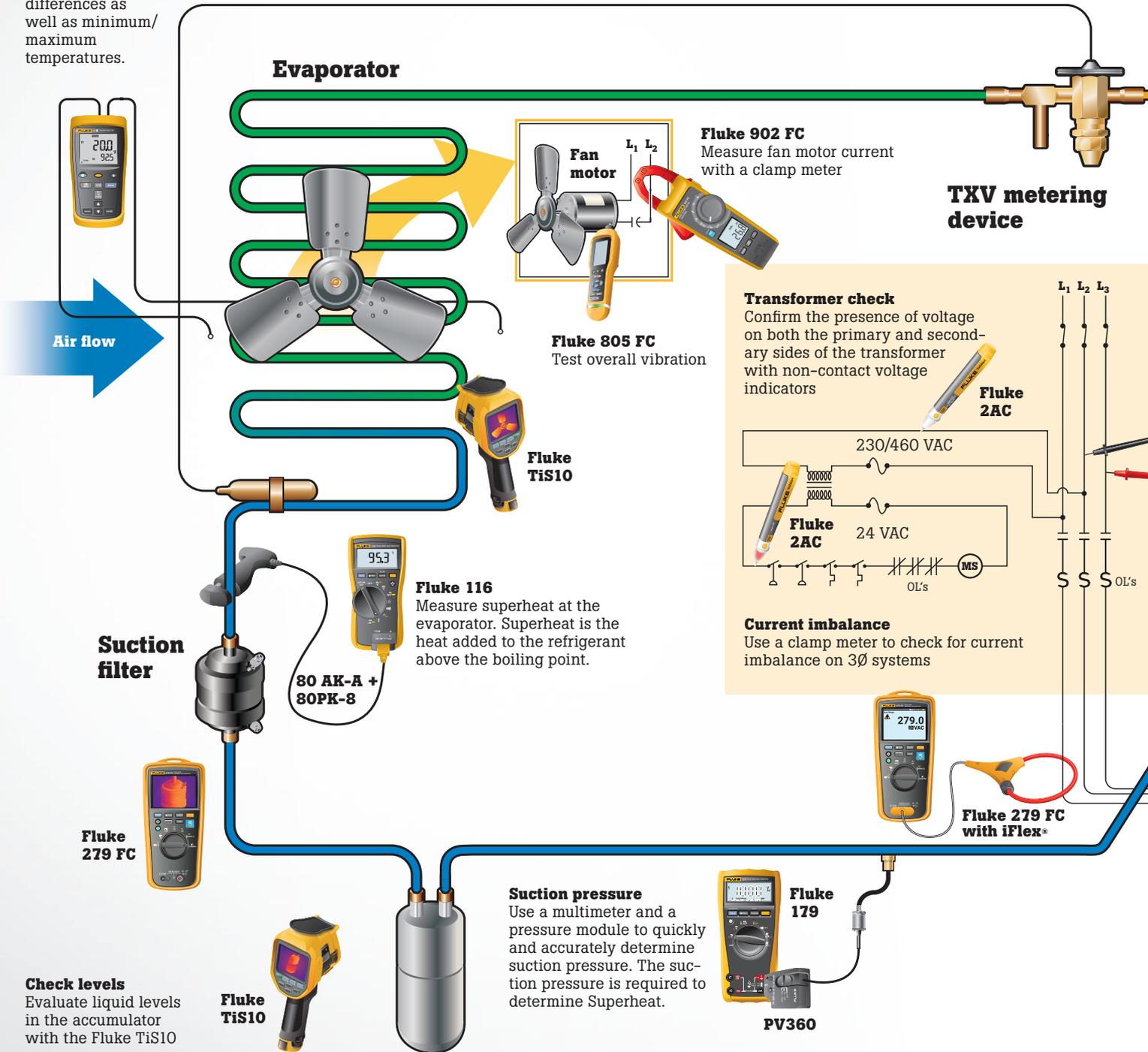
Fluke 805 FC Vibration Meter

The reliable, repeatable, accurate way to check bearings and overall vibration and stay in contact with your team using Fluke Connect with ShareLive™.

Air conditioning and refrigeration solutions

Fluke 52 II
Record evaporator temperature differences as well as minimum/maximum temperatures.

Evaporator



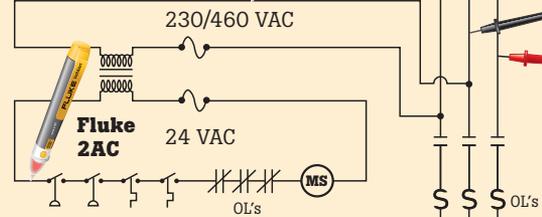
Fluke 902 FC
Measure fan motor current with a clamp meter

TXV metering device

Fluke 805 FC
Test overall vibration

Transformer check
Confirm the presence of voltage on both the primary and secondary sides of the transformer with non-contact voltage indicators

Fluke 2AC



Current imbalance
Use a clamp meter to check for current imbalance on 3Ø systems

Fluke 116
Measure superheat at the evaporator. Superheat is the heat added to the refrigerant above the boiling point.

80 AK-A + 80PK-8

Suction filter

Fluke 279 FC

Fluke 279 FC with iFlex®

Suction pressure
Use a multimeter and a pressure module to quickly and accurately determine suction pressure. The suction pressure is required to determine Superheat.

Fluke 179 PV360

Check levels
Evaluate liquid levels in the accumulator with the Fluke TiS10

Fluke TiS10

Piping color code

	High-pressure gas
	High-pressure gas/liquid saturated mixture
	High-pressure liquid
	Low-pressure liquid/gas saturated mixture
	Low-pressure gas

Sight glass/ moisture indicator

Liquid line filter drier

ΔP across filter drier
Measure the pressure drop across the liquid line and suction filters to determine if a restriction exists.



Capacitors
Measure capacitance or resistance and insulation resistance of the windings on the motors on PSC-Permanent Split Phase Capacitor motors.

Fluke 1587 FC



Fluke 116



Supply and load voltages
Measure supply and load voltages. The supply voltage should be within +10 %, -5 % of the motor rating.

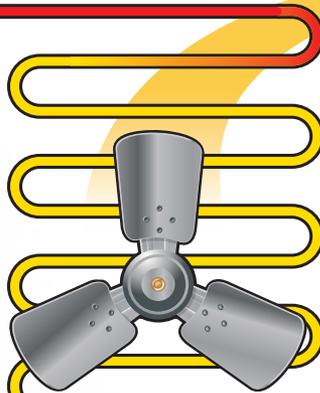
Discharge line temperature

Measure discharge line temperatures with a thermometer and probe.

Fluke 116



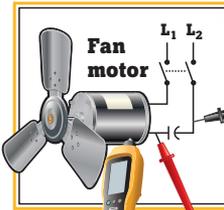
Condenser



Fluke 116



Ambient air temperature
Measure ambient air temperatures with a Fluke 116, 80AK-A and 80PK-24 SureGrip™ air probe.



TP220 + TL224

Fluke 805 FC



Compressor

Compressor head temperature

Measure discharge head temperatures with an infrared or non-contact thermometer. Head temperatures in excess of 250 °F to 300 °F (120 °C to 150 °C) will begin to deteriorate the quality of refrigerant lubricants.

Fluke 279 FC



Subcooling

Test for proper subcooling temperatures at the liquid line. Liquid line subcooling is the temperature difference between refrigerant saturation temperature and the liquid line temperature.

Fluke TiS10



King valve

Check levels
Use a thermal imager to check liquid receiver levels or king valve.

Fluke TiS10

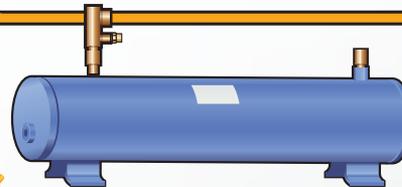


Fluke 116



80 AK-A + 80PK-8

Liquid receiver



Electric heat solutions

Calculate airflow

Calculate CFM easily from systems with electric heat:

$$CFM = \frac{(Volts \times Amps \times 3.412)}{(\Delta T \times 1.08)}$$

where Volts and Amps are the measured values of electric heat elements and T is the air temperature difference across the furnace.

Air temperature difference

Check the temperature difference across the heating elements with the Fluke 52 II

Sequencers: A special time delay relay with low voltage control circuit and line voltage switching. Causes staging of heating elements

Fluke 52 II



Fluke 52 II

Cold air

Fluke 116

Primary voltage



Fluke 279 FC



Heater elements

5 kw each provides 17,000 BTU's @ 240 volts

Fluke T5-600



Fluke 805 FC

Test overall vibration on motors and pumps with the 805 FC Vibration Meter



Heated air



$$\text{Electric heat BTU's} = \text{volts} \times \text{amps} \times 3.412$$



Fluke 279 FC Thermal Multimeter

The 279 FC is a full-featured digital multimeter with integrated thermal imaging and is designed to increase your productivity and confidence.



Fluke 116 Digital Multimeter

With the ability to take temperature and microamp measurements, the Fluke 116 Digital Multimeter has everything you need to help you quickly troubleshoot problems with HVAC equipment and flame sensors. The Fluke 116 measures resistance, continuity, frequency and capacitance.



Fluke 52 II Dual Input Digital Thermometer

The Fluke 52 Series II Thermometer provides high accuracy and performance in one of the most advanced, yet affordable dual input thermometers in the industry. Compatible with any J, K and many other type thermocouples. Ideal for differential temperature measurement.



Fluke 805 FC Vibration Meter

The reliable, repeatable, accurate way to check bearings and overall vibration and stay in contact with your team using Fluke Connect with ShareLive™.



Fluke T5-600 Voltage, Continuity and Current Tester

Fluke T5 Series Electrical Tester is a flexible design for the basic measurements of volts, amps, and ohms, which is a safer alternative to traditional solenoid testers. Compact OpenJaw™ technology makes current measurement simple and reliable from 100 A down to 0.3 A ac.

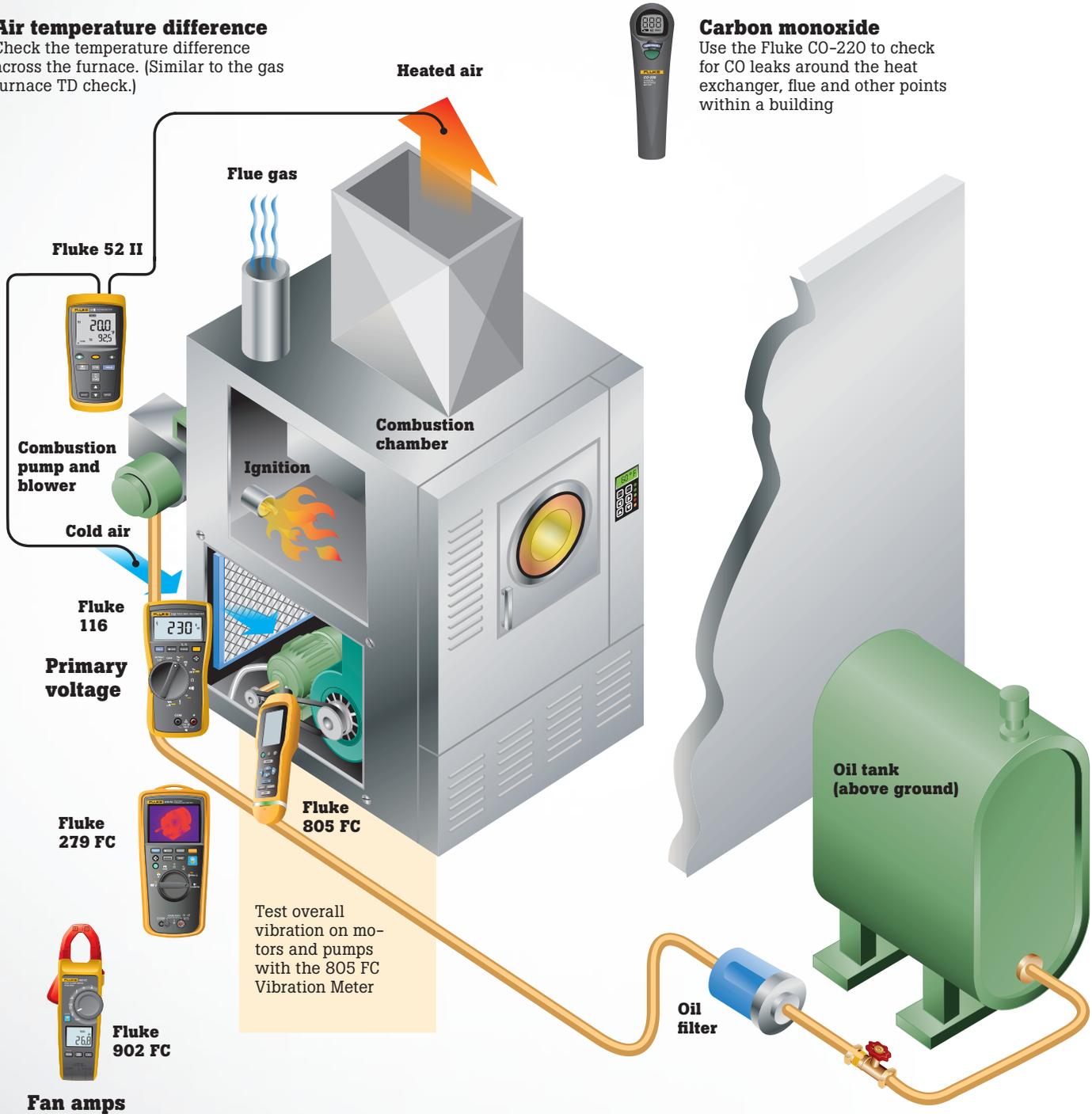
Oil heat solutions

Air temperature difference

Check the temperature difference across the furnace. (Similar to the gas furnace TD check.)

Carbon monoxide

Use the Fluke CO-220 to check for CO leaks around the heat exchanger, flue and other points within a building



$$\text{Net BTU's} = \text{Gross BTU's} \times \text{efficiency rating}$$



Fluke 279 FC Thermal Multimeter

The 279 FC is a full-featured digital multimeter with integrated thermal imaging and is designed to increase your productivity and confidence.



Fluke 116 Digital Multimeter

With the ability to take temperature and microamp measurements, the Fluke 116 Digital Multimeter has everything you need to help you quickly troubleshoot problems with HVAC equipment and flame sensors. The Fluke 116 measures resistance, continuity, frequency and capacitance.



Fluke 52 II Dual Input Digital Thermometer

The Fluke 52 Series II Thermometer provides high accuracy and performance in one of the most advanced, yet affordable dual input thermometers in the industry. Compatible with any J, K and many other type thermocouples. Ideal for differential temperature measurement.



Fluke 805 FC Vibration Meter

The reliable, repeatable, accurate way to check bearings and overall vibration and stay in contact with your team using Fluke Connect with ShareLive™.



Fluke CO-220 Carbon Monoxide Meter

The CO-220 Carbon Monoxide Meter allows quick and reliable testing for carbon monoxide. The unit is easy to use with a large display and automatic backlight. An audible beeper ticks faster as the CO level increases. Accurately measures from 0 to 1000 PPM of carbon monoxide.



Fluke T5-600 Voltage, Continuity and Current Tester

Fluke T5 Series Electrical Tester is a flexible design for the basic measurements of volts, amps, and ohms, which is a safer alternative to traditional solenoid testers. Compact OpenJaw™ technology makes current measurement simple and reliable from 100 A down to 0.3 A ac.

Promotions

Receive a **FREE** gift with purchase when you buy Fluke tools. Learn more at www.fluke.com/promotions today



Fluke. Keeping your world up and running.®

Fluke Corporation
 PO Box 9090
 Everett, WA 98206 U.S.A.

Fluke Europe B.V.
 PO Box 1186, 5602 BD
 Eindhoven, The Netherlands

For more information call:
 In the U.S.A. (800) 443-5853 or Fax (425) 446-5116
 In Europe/M-East/Africa +31 (0) 40 2675 200 or
 Fax +31 (0) 40 2675 222
 In Canada (800)-36-FLUKE or Fax (905) 890-6866
 From other countries +1 (425) 446-5500 or Fax +1 (425) 446-5116
 Web access: <http://www.fluke.com>

©2016 Fluke Corporation. Specifications subject to change without notice.
 Printed in U.S.A. 7/2016 6008218a-en

Modification of this document is not permitted without written permission from Fluke Corporation.