Cleveland Open Cup Flash Point Tester

- ASTM D92, ISO 2592, IP 36, GB/T 3536
- One-key start
- Machine Vision Technology to detect flash point
- Widely used in petroleum, electric power, railway, aviation, water transportation, national defence and scientific research etc.

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Introduction

EIE-FP92-3, the Cleveland Open Cup Flash Point Tester, is developed by Etech International Enterprises Inc. (EIE) Canada. It adopts advanced design concepts and combines machine vision image recognition technology, which pushes the automation of the flash point tester to a higher level. It ensures the accuracy, repeatability and reproducibility of the measurement. The traditional flash point method, electrode ion detection, which may miss the flash point caused by too small flash fire or improper flash fire position, is completely removed by the use of vision image.

Technical Features

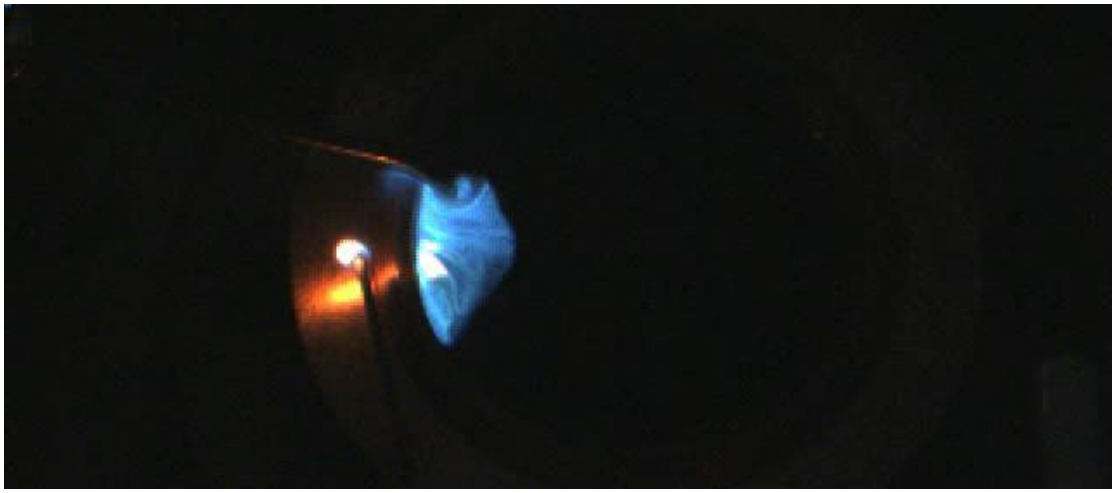
1. Machine vision technology is a cutting-edge technology in the field of automation and AI. It completely simulates the behavior of the human eye through recognition and processing of captured images, and exceeds the capture rate and resolution of the human eye. Thereby, the behaviors and actions that replace the artificial naked eye observation are realized, and the obtained results have high precision and good repeatability.
2. The machine vision open cup flash point tester uses the above technology, uses an industrial color camera, captures images in real time, and accurately captures the instantaneous flash point (or ignition point) through computer vision and pattern recognition algorithm programs.
3. After many flash point determination tests, a unique and excellent application software was developed, and a mathematical model for judging the flash point was found, and the multi-dimensional accurate calculation from the area size, color, and brightness of the instantaneous flashing flame, coupled with the capture of more than 100 FPS of the frame rate is more sensitive than the human eye, and it can reliably capture the flashing moment of at least one frame, instantly determine the flash point, and read the temperature of the tested sample synchronously, which makes the flash point temperature more realistic and accurate, almost eliminating the Miss of flash point.
4. The unique disturbance elimination algorithm realizes the detection of the flame state of the gas source igniter by using machine vision at the real time, and makes automatic ignition after extinguishing, so that the measurement avoids the high flash point caused by the missed detection temperature due to the extinguishing of the igniter flame, which makes the results more accurate and reliable.

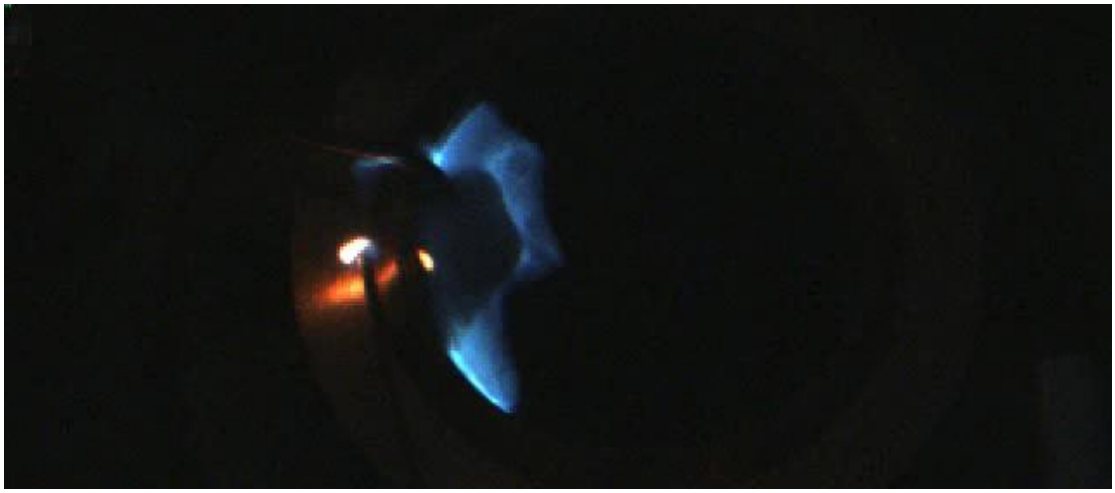
5. The high-speed and large-capacity computer hardware saves the measured video and the captured flash point image in the form of video images, which can be played back, so that the flash point results can eliminate disputes and have more legal significance.

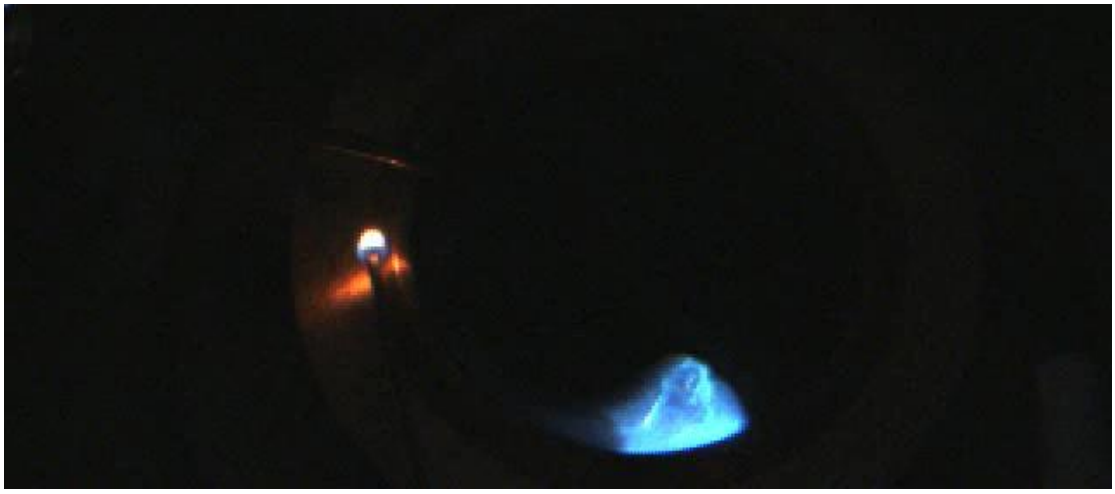
SPECIFICATIONS

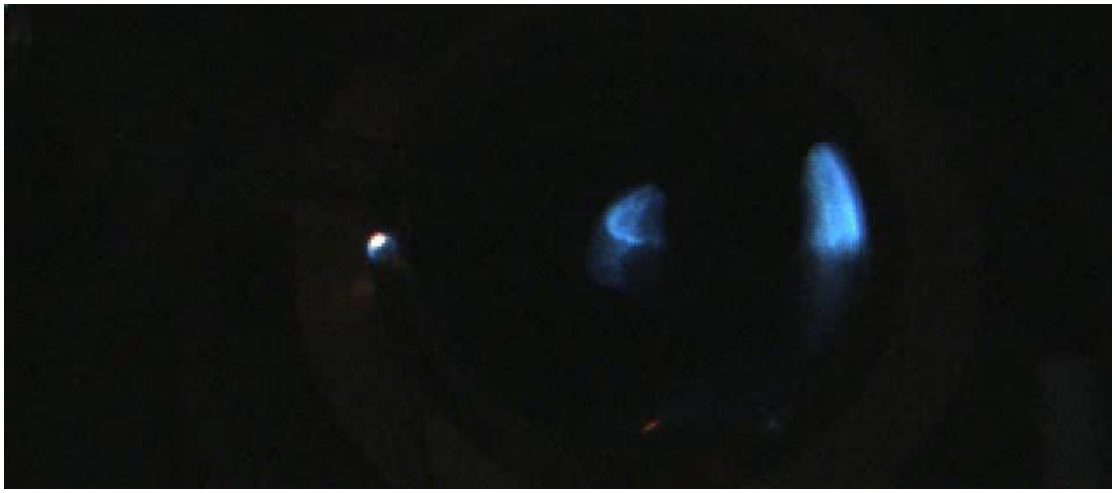
Standards	
ASTM D92, ISO 2592, IP 36, GB/T 3536	
Technical Details	
Measurement Range	70 - 400 °C
Measurement accuracy	± 1°C
Resolution	0.1°C
Ignition source	Gas flame (electric ignition, automatic control)
Flash point detection	Machine Vision
Detection Frame Rate	>100 FPS
Air pressure detection	Built-in atmospheric pressure detection unit
Data storage	1000 groups (can be customized)
Data output	Built-in micro thermal printer can be transferred to the LIMS system. (external printer can be connected)
Data interface	USBx2 RJ45x1 RS232x1
Cooling method	Strong ventilation cooling
Safety protection	Automatically turn off the heating when overheating during the test
Gas Source Type	Propane or butane or natural gas.
Voltage	AC 110 - 230 V ±10% 50 - 60 Hz
Total power	1000W
Dimension	485 L X 230 W X 626 H mm
Weight	20 Kg
Working Environment	
Operating temperature	5 - 35 °C
Storage temperature	-15 - 55 °C
Relative humidity	< 80%
Operating place	Indoor, Shaded

The images when detecting the flash point:









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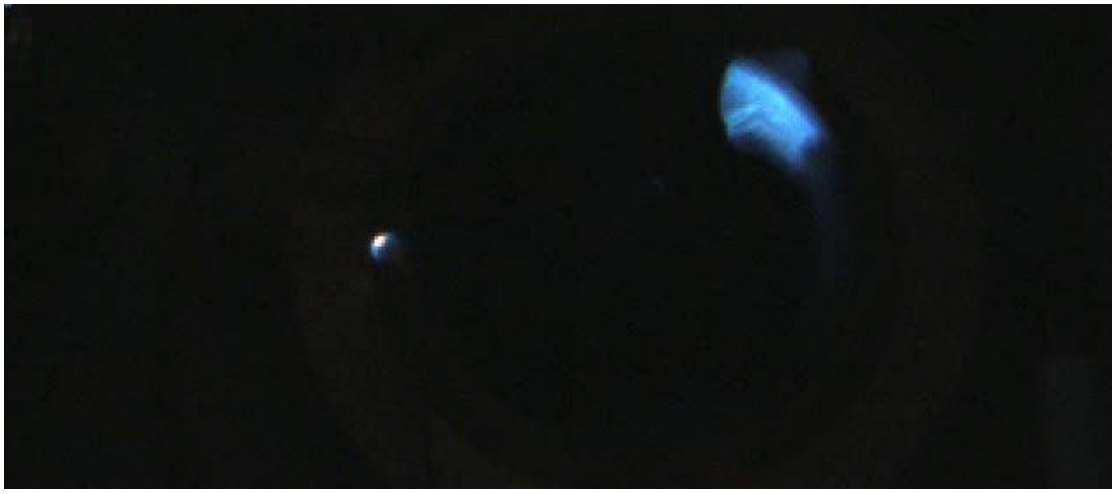

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