

# DFA-70Xi Diesel Fuel Analyzer

cloud point, pour point, viscosity & density of diesel fuels

from Phase Technology



## Scientifically Designed for Workflow Optimization

- **SUPER FAST SPEED**  
Four different tests in less than 25 minutes.
- **AUTOMATIC SAMPLE INPUT**  
No pipette required. New vial injection system loads sample automatically.
- **SELF CLEANING — NO SOLVENT REQUIRED**  
No messy clean up. Automatic flush cycle rinses and disposes of remaining sample.
- **NO LIQUID BATH**  
Quiet, cool, self-contained thermoelectric cooler; no hazardous liquid bath medium
- **NO BREAKABLE GLASSWARE**  
Internal capillary system eliminates need for fragile glass viscosity tubes
- **SUPERIOR PRECISION**  
Best measured repeatability and reproducibility of any automatic or manual method
- **ONE-TOUCH PRESET FAVORITES**  
Frequently-used test settings can be stored in the analyzer for quick access.
- **OPTIMIZED FOR QUALITY CONTROL**  
Automatic QC runs with built-in control charts.

Cloud Point - Pour Point - Diesel Viscosity - Diesel Density

## Versatility & Convenience Combined

Phase Technology's new DFA-70Xi analyzer is the world's first and only instrument that performs four important diesel fuel tests in one single unit—cloud point, pour point, viscosity and density. And, it does it all in less than 25 minutes!

### Automatic Sample Injection System

The DFA-70Xi features a new, side loaded automatic sample injection port. There's no longer a need to manually pipette. The analyzer always draws the precise amount of sample as required by the ASTM method.

The DFA is completely self-cleaning; no need of solvents. Save time and hassle of cleaning, and avoid any risk of damage to the sample cup or breakage of glassware.

### Unsurpassed ASTM Precision

The DFA-70Xi's ASTM D7945 viscosity method exceeds D445 with repeatability of 0.50%.

And unlike other viscometers, with the DFA-70Xi there's no liquid bath needed.

Cloud point is tested according to ASTM D5773, the longest, continuously active automatic method.

The DFA's ASTM D5949 pour point method has similarly been active longer than any other automatic methods.

Density measurement correlates to ASTM D4052.



### Trusted 70Xi Analyzer Design

The new DFA analyzer is built on the 70Xi series platform, so all the same time-saving, productivity-boosting features are included.

**It's important for us to maintain consistent quality at every point of the refining process. That's why we use Phase Technology analyzers throughout our company in various locations. Our business depends upon the accuracy of the results. For reliability, Phase Technology is our instrument of choice.** *Louis A. Delgado, Lab Manager, Valero Energy Corporation*



**PHASE  
TECHNOLOGY**

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# DFA-70Xi Diesel Fuel Analyzer

|  |  |  |                 |
|--|--|--|-----------------|
| <b>TEST METHODS</b>  | Cloud Point  | ASTM D5773 (IP 446)<br>ASTM D2500 (IP 219/ISO 3015) equivalent or better       |                 |
|  | Pour Point   | ASTM D5949<br>ASTM D97 (IP 15/ISO 3016) equivalent or better                   |                 |
|  | Kinematic Viscosity  | ASTM D7945 @ 40 °C<br>ASTM D445 (IP 71/ISO 3104) equivalent or better          |                 |
|  | Density  | ASTM D4052 (IP 365/ISO 12185) @ 15 °C correlation                              |                 |
| <b>STATED PRECISION: REPEATABILITY &amp; REPRODUCIBILITY</b> |  | Repeatability  | Reproducibility |
|  | Cloud Point  | 1.3 °C   | 2.5 °C          |
|  | Pour Point   | 1.6 °C   | 3.2 °C          |
|  | Kinematic Viscosity  | 0.50%  | 0.80%           |
|  | Density  | 0.0001 g/mL  | 0.0005 g/mL     |
| <b>BIAS</b>  | 0 (relative to ASTM manual methods)  |  |                 |
| <b>CLOUD &amp; POUR POINT SAMPLE TEMPERATURE RANGE</b>       | -80 °C to 70 °C  |  |                 |
| <b>SYSTEM CLEANING</b>                                       | Automatic flush cycle; no solvent required   |  |                 |
| <b>TEST DURATION</b>   | Cloud point & density combined   | 5 to 10 minutes  |                 |
|  | Viscosity & density combined   | 10 minutes   |                 |
|  | Cloud, pour, viscosity & density combined  | 25 minutes   |                 |
| <b>REQUIRED OPERATOR TIME</b>                                | 0.25 minutes   |  |                 |
| <b>SAMPLE SIZE</b>   | 0.15 mL required for test<br>minimum 20 mL including cleaning  |  |                 |
| <b>DETECTION METHOD</b>                                      | Patented Diffusive Light Scattering (DLS) technology for cloud and pour point; horizontal capillary with motive force for KV   |  |                 |
| <b>COOLING SYSTEM</b>  | Integrated Peltier device cooling system   |  |                 |
| <b>DISPLAY</b>   | Full-color, touch-sensitive, 15" high resolution LCD touch screen  |  |                 |
| <b>OUTPUTS</b>   | (3) USB A ports for optional peripherals: flash drive, label printer, barcode scanner, keyboard, mouse; (1) USB B port<br>(3) RS-232 serial ports for optional peripherals & networking; external computer, Phase Technology LTB diagnostic software; (1) dedicated Service port; (1) 10/100Base-T Ethernet (RJ45) port for networking; LIMS, local area network (LAN) |  |                 |
| <b>TEMPERATURE MEASUREMENT</b>                               | °C or °F (User selectable)   |  |                 |
| <b>ALERTS</b>  | Buzzer for alarms warnings and prompts (User selectable)   |  |                 |
| <b>INTERNAL MEMORY</b>                                       | Storage up to 5000 test runs   |  |                 |
| <b>AMBIENT OPERATING ROOM TEMPERATURE</b>                    | 10 to 30 °C (50 to 86 °F)<br>Extremes not recommended  |  |                 |
| <b>DIMENSIONS (W x D x H)</b>                                | Unit   | Length x Width x Height<br>21.5 x 13.25 x 17.5 inches<br>54.6 x 33.7 x 44.5 cm |                 |
|  | Boxed  | 29 x 23 x 19 inches<br>74 x 58 x 48 cm   |                 |
| <b>WEIGHT</b>  | Unit   | 53 lbs / 24 kg   |                 |
|  | Boxed  | 62 lbs / 28 kg   |                 |
| <b>UTILITY REQUIREMENTS</b>                                  | Electrical   | 90 – 260 VAC, 47 – 63 Hz<br>350 watts  |                 |
|  | External Cooler Bath   | NONE   |                 |

## Applications

Diesel and biodiesel fuel's cold-weather operability and fuel handling characteristics are measured by testing cloud point and pour point.

Viscosity is an important parameter to ensure there is proper lubrication, with no damage in the engine's fuel pump. Viscosity also influences the spray pattern when the fuel is injected into the cylinder.

Density affects the heating value (or energy content) of the fuel.

## Options

Phase Technology DFA-70Xi analyzers give you complete flexibility – choose the test options you need for a customized solution. Available DFA-70Xi configurations include:

DFA-70Xi

Cloud and pour point, viscosity, density for diesel fuels

DFA-70Xi-FP

Cloud and pour point, viscosity, density for diesel fuels; freeze point for jet fuels

DFA-70Xi-AS

Cloud and pour point, viscosity, density for diesel fuels; with 48-position autosampler

DFA-70Xi-FP-AS

Cloud and pour point, viscosity, density for diesel fuels; freeze point for jet fuels; with 48-position autosampler

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**Our Phase Technology analyzer is a real time-saver. The combination of automation and the easy-to-understand color touch-screen adds to our lab's overall efficiency.**

*Thomas C. Bell, Specialist – Manufacturing and Lab Support, Chevron*