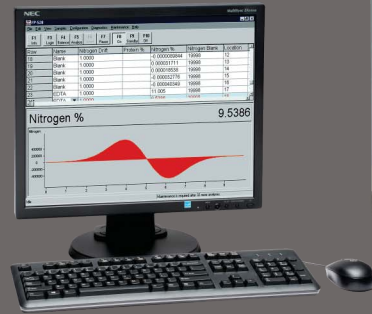


# FP-528

## Nitrogen/Protein

Foods, Feeds, Forages,  
Fertilizers, Milled Products



Used specifically for low-sample throughput laboratories, the FP-528 Nitrogen/Protein Determinator is a cost-effective alternative to Kjeldahl digestion methods.

### How it Works

An encapsulated sample is placed into the loading head of the FP-528, where it is sealed and purged of any atmospheric gases that have entered during sampling loading. The sample is then dropped into a hot furnace and flushed with pure oxygen for very rapid combustion.

By-products of combustion—CO<sub>2</sub>, H<sub>2</sub>O, NO<sub>x</sub>, and N<sub>2</sub>—pass through the furnace filter and thermoelectric cooler for subsequent collection in a ballast apparatus. These collected gases in the ballast are equilibrated, and a small aliquot dose is then used for further conversion of the gases. The remaining aliquot that has been reduced is measured by the thermal conductivity cell for nitrogen.

The system is controlled by an external PC using custom-designed operating software.



**Sample Holder**  
Holds up to  
250 mg sample



**Collection System**  
Ballast collects all  
evolved gases;  
Ensures complete  
homogenization prior  
to determination



**Combustion Tube**  
Combustion of  
samples in an  
oxygen-rich  
environment

This instrument is now available in either Helium or Argon carrier gas models. The type of carrier gas used may affect some instrument specifications, as indicated below.

## Specifications

<b>Instrument Range*</b>	
Helium Model (3 cc Aliquot Loop):	0.04 mg to 250 mg absolute Nitrogen
Argon Model (10 cc Aliquot Loop):	0.1 mg to 100 mg absolute Nitrogen
<b>Precision</b>	
Helium Model (3 cc Aliquot Loop):	0.02 mg or 0.5% RSD, whichever is greater
Argon Model (10 cc Aliquot Loop):	0.05 mg or 1.0% RSD, whichever is greater
<b>Analysis Time</b>	3 minutes nominal
<b>Sample Size</b>	Up to 250 mg
<b>Detection Method</b>	Thermal Conductivity
<b>Chemical Reagents</b>	Anhydrous Magnesium Perchlorate, Calcium Oxide, Sodium Hydroxide on an inert base, Copper Sticks, N Catalyst Reagent, Copper Turnings, Alumina Pellets, Magnesium Oxide
<b>Gas Required</b>	
Carrier Gas, Helium Model	99.99% Helium 40 psi (2.8 bar), ±10%
Carrier Gas, Argon Model:	99.99% Argon 40 psi (2.8 bar), ±10%
Combustion Gas:	99.99% Oxygen 40 psi (2.8 bar), ±10%
Pneumatic Gas:	Compressed Air, source must be oil and water free; 40 psi (2.8 bar), ±10%
<b>Gas Flow Rates</b>	
Carrier Gas:	Analysis: 200 mL/min (measure), 30 mL/min (reference) Conservation: 30 mL/min (measure), 30 mL/min (reference)
Combustion Gas:	1.3 to 6 L/min (user programmable oxygen profile)
<b>Furnace Range</b>	Up to 975 °C
<b>Weight</b>	150 lb (68 kg)
<b>Physical Dimensions**</b>	28 in H x 21 in W x 23 in D (71 cm x 53 cm x 58 cm)
<b>Sound Pressure Level</b>	42 dBA (max reading at operator's level per IEC/EN 61010-1)
<b>Electrical Power Requirements</b>	230 V~ (±10%; at max load), 50/60 Hz, single phase, 10 A, 7,900 Btu/hr <sup>†</sup>
<b>Regulatory</b>	Not EU RoHS compliant, No CE marking
<b>Part Numbers</b>	
FP528C	Nitrogen/Protein Determinator, Helium Model, with PC and software
FP528ARC	Nitrogen/Protein Determinator, Argon Model, with PC and software
<b>Optional Accessories</b>	
621-453-110	Printer
751-350-110	4-Place Balance

\*Use the following formula to calculate element concentration:

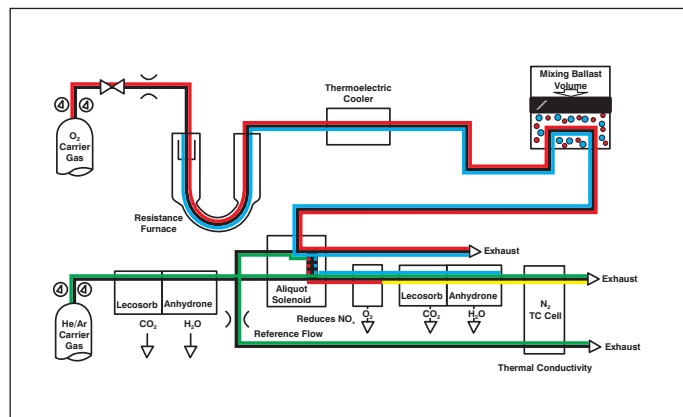
$$\% \text{ element concentration} = ((\text{absolute element mass in mg}) / (\text{sample mass in mg})) * 100$$

\*\*Allow a 6-inch (15 cm) minimum access area around all units.

<sup>†</sup>Average output based on nominal operating parameters.

V~ denotes VAC.

## Simplified Flow Diagram



Expanded features including automation, multiple elements, external PC control, expanded sample size ranges, operating software that supports compliance to 21 CFR Part 11, and SmartLine® Remote Diagnostics are available on the CHN628 Series. For more information, request form no. 209-218.

LECO and SmartLine are registered trademarks of LECO Corporation.

Specifications and part numbers may change. Consult LECO for latest information.

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**LECO** Corporation  
Delivering the Right Results