

# 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 mixed, 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 Windows®-based operating software.

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



**Collection System**  
Patented 4.5 liter ballast collects all evolved gases  
Ensures complete homogenization prior to determination



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



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Delivering the Right Results

# Specifications

<b>Instrument Range @ 250 mg</b>	
3 cc Aliquot Loop:	160 ppm or 0.016% to 100% or 0.04 to 300 mg absolute Nitrogen
<b>Precision @ 250 mg</b>	
3 cc Aliquot Loop:	80 ppm or 0.5% RSD, whichever is greater
<b>Readability</b>	0.001%
<b>Calibration</b>	Standard Sample; Linear
<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:	99.99% Helium or 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>Regulators</b>	
Helium:	0 to 125 psi (0 to 8.3 bar), CGA 580, 15/16-14 Female R.H.
Oxygen:	0 to 125 psi (0 to 8.3 bar), CGA 540, 7/8-14 Male R.H.
Air:	0 to 125 psi (0 to 8.3 bar), CGA 346, 13/16-14 Male R.H.

<b>Furnace Range</b>	Up to 975° Celsius
<b>Weight</b>	150 lb (68 kg)

**Physical Dimensions** 28 in. H x 21 in. W x 23 in. D  
(71 cm x 53 cm x 58 cm)

**Electrical Power Requirements** 230 V~ (±10%; at max load),  
50/60 Hz, single phase, 10 A,  
7,900 BTU/hr

### Part Numbers

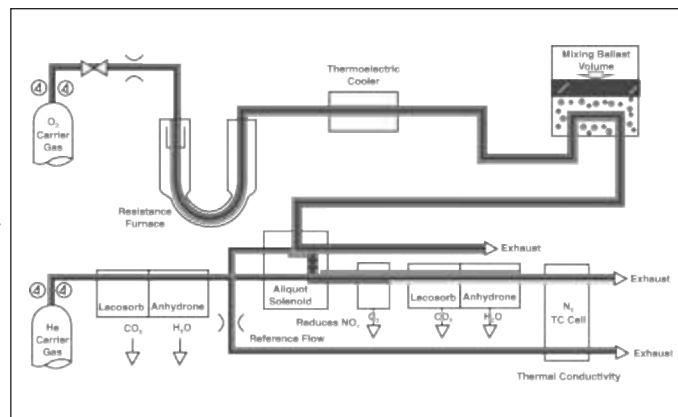
FP528C Nitrogen/Protein Determinator with PC  
and Windows-based operating software

### Optional Accessories

621-434-110 Printer  
751-300-160 4-Place Balance

V~ denotes VAC.

### Simplified Flow Diagram



Expanded features including automation, multiple elements, external PC control, expanded sample size ranges, Windows®-based operating software that supports compliance to 21 CFR Part 11, and SmartLine® Remote Diagnostics are available on the TruSpec® Series. For more information, request form no. 209-150.

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

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