



# NDA Series

## Dumas Nitrogen Analyzer

Nitrogen / Protein Determination in a Flash



# NDA Series Nitrogen Analyzer

The NDA series combustion elemental analyzers are versatile, cloud-enabled and fully automated solutions for nitrogen determination according to Dumas Method in a wide range of applications. The NDA series offers high performance on both solid and liquid samples, working in accordance to international standards such as AOAC, AACC, ASBC, ISO, IFFO, OIV.

## FAST ANALYSIS

The fully automatic NDA Series elemental analyzers perform analysis in 2-5 minutes. The quick start and sleeping mode ensures fast operation set up with possibility of leak test per zone.

## THE HIGHEST PRECISION

The LoGas™ TCD (Thermal Conductivity Detector) designed by VELP guarantees unmatched precision with the unrivaled LOD of 0,001 mgN and 0,5% standard deviation.

## MAXIMUM SAFETY

The NDA Series analyzers are equipped with state-of-the-art safety features that interrupt the analysis in case of irregularities. Immediate notification and remote stop via Velp Ermes platform ensures safe unattended operations.

## EFFICIENCY

The fully automatic and reliable combustion method of NDA Series together with DriStep™ water trap guarantee moderate cost. The 30-positions disc autosampler expandable with extra 3 discs ensures maximum productivity and uptime.

## VERSATILITY

The NDA Series works with solid, liquid and doughy samples of up to 1 gram. Seamless carrier gas selection between Helium and Argon without hardware changes and without memory effect.

## SMART INSTRUMENT

The NDA Series elemental analyzers are easy to use and not require skilled operator. The user-friendly DUMASoft™ software and VELP Ermes connection will deliver a new user experience and smart workflows.



## DUMAS VS KJELDAHL

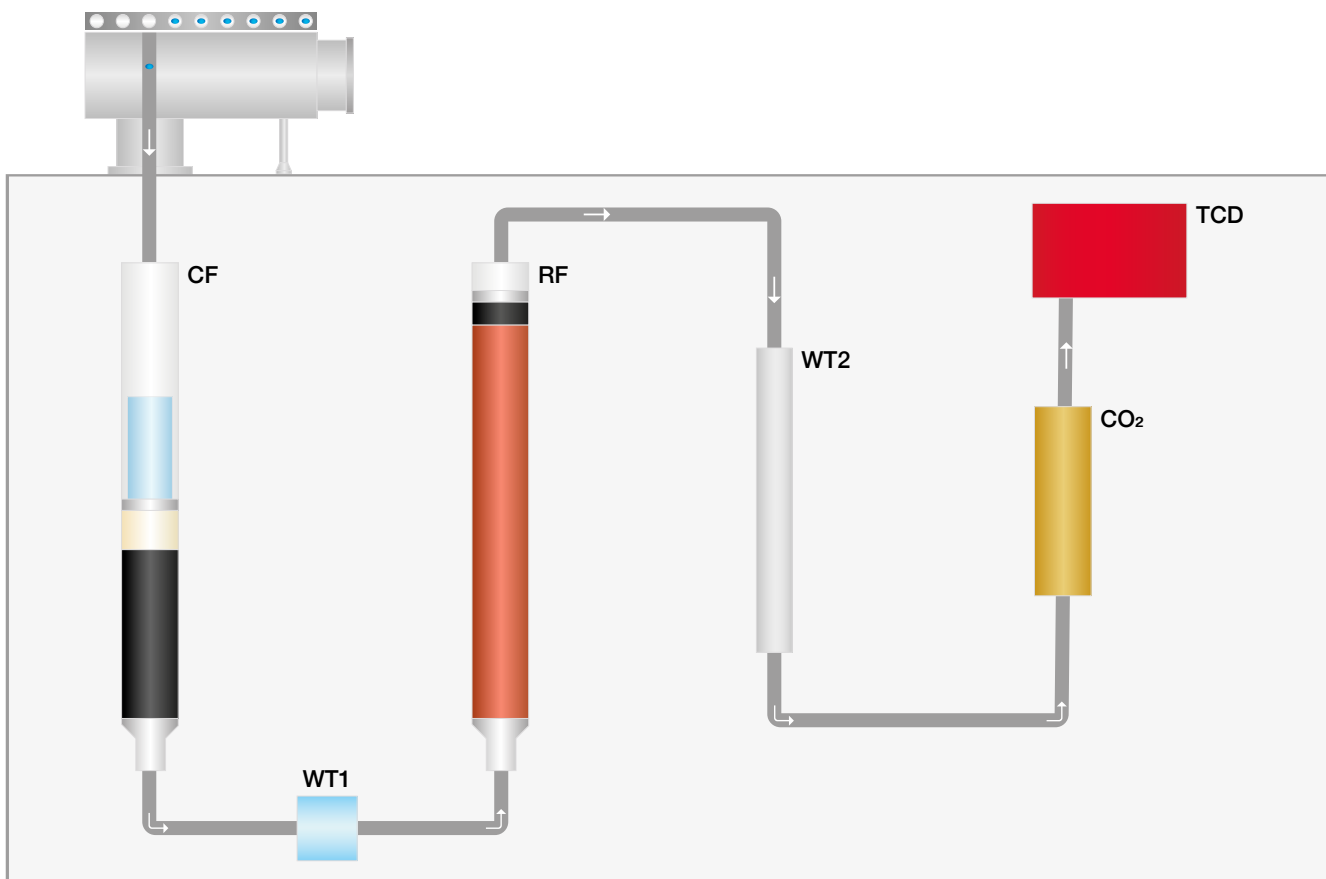
### DUMAS

- **HIGH PRODUCTIVITY**  
Non-stop performance
- **TIME SAVING**  
Few minutes required
- **LOW COST OF OWNERSHIP**  
Moderate running costs
- **TOTALLY UNSUPERVISED**  
Fully automated process
- **DRY CHEMISTRY**  
No dangerous chemicals
- **ECO-FRIENDLY**  
Less residues and no wastes produced
- **OFFICIALLY RECOGNIZED METHOD**  
Gaining in international use with advanced instruments

### KJELDAHL

- **LESS PRODUCTIVITY**  
Inability to operate continuously
- **TIME-CONSUMING**  
Analyses last hours
- **AFFORDABLE EQUIPMENT COST**
- **PARTLY UNSUPERVISED**  
Not entirely automated process
- **WET CHEMISTRY**  
Uses chemicals
- **COSTLY WASTES PRODUCED**  
Residues must be disposed off
- **WORLDWIDE OFFICIAL METHOD**  
Traditional technique, simple equipment

# NDA Analysis Process



- **CF** (Combustion Reactor) Allows complete combustion at 1030 °C in order to convert all of the sample into its elemental substances.
- **WT1** (Physical Water Trap) The maintenance-free DriStep™ cooler permits 99% of water to be removed.
- **RF** (Reduction Reactor) Enables the elimination of unwanted compounds and oxygen, transforming NO<sub>x</sub> into N<sub>2</sub>.
- **WT2** (Chemical Water Trap) Eliminates the residual water.
- **CO<sub>2</sub>** (CO<sub>2</sub> Regenerating Adsorbers) Used to get rid of all the CO<sub>2</sub>. Auto-regenerating, maintenance-free system.
- **TCD** (Innovative TCD) LoGas™ determines nitrogen content without the need for a reference gas. Maintenance-free.

## VELP ERMES CONNECTION



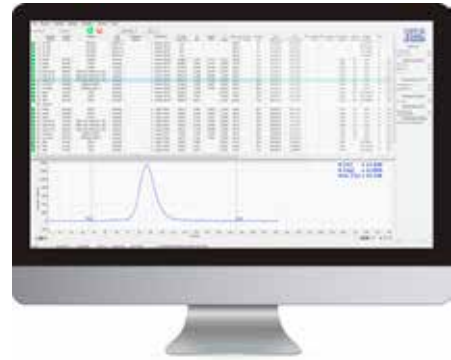
Connect the NDA to the exclusive Velp Ermes Cloud Platform to improve your laboratory experience. The Velp Ermes platform connection will unburden you from tedious tasks, improving your lab productivity.

- Real time monitor and control of the instrument from PC, smartphone and tablet whenever you want, wherever you are;
- Immediate alert and notification with the possibility to stop the instrument for maximum safety;
- Regular software updates will guarantee the best performance and new features with just one-click.

**ermes enabled**

# DUMASoft™ Software

The DUMASoft™ software is the powerful VELP solution that controls and operates the NDA Series analyzers. The DUMASoft™ comes with a user-friendly interface that displays all relevant information at a glance: results, database and instrument conditions. It is possible to choose from a rich library of pre-installed methods and create customized ones.



## 1 BEFORE THE ANALYSIS

- Create or choose a calibration curve
- Fill in the required data (sample name, analysis type, weight...)
- Select a method and calibration curve

## 2 DURING THE ANALYSIS

- Monitor of the working parameters
- Real time graph of the analysis
- Immediate read-out of the results in mg of nitrogen, nitrogen % and protein %



## 3 AFTER THE ANALYSIS

- Multiple data comparison
- Data export in .xls, .txt and .csv to PC or LIMS
- Create, print and download reports of single or multiple analysis
- If necessary set the instrument in Stand-by mode or Sleeping mode
- Short statistical analysis in one click

## APPLICATIONS

### PROTEIN DETERMINATION

- CEREAL GRAINS AND OILSEEDS  
AOAC 992.23
- ANIMAL FEED  
AOAC 990.03
- MILK AND MILK PRODUCTS  
UNI EN ISO 14891, FIL-IDF 18
- FLOURS, CEREALS GRAINS, OIL SEEDS AND ANIMAL FEEDS  
AACC 46-30
- GRAIN AND GRAIN PRODUCTS  
ICC 167
- OIL SEEDS AND ANIMAL FEEDING STUFFS  
ISO 16634-1:2008
- BEER, WORT, AND BREWING GRAINS  
AOAC 997.09
- MEAT AND MEAT PRODUCTS  
AOAC 992.15

### NITROGEN DETERMINATION

- FERTILIZERS  
AOAC 993.13
- SOIL  
ISO 13878:1998
- RUBBER, LATEX, ELASTOMERS  
ISO TC 45/SC 2 N2116
- CELLULOSE
- VACCINES
- PLASTICS
- PAPER

## OPTIONAL ACCESSORIES

1000 analyses kit	A00000194
2000 analyses kit	A00000270
4000 analyses kit	A00000271
Disc 2 for Autosampler	A00000199
Disc 3 for Autosampler	A00000200
Disc 4 for Autosampler	A00000201
Pre-packed combustion reactor	A00000158
Pre-packed reduction reactor	A00000226
Quartz reactor tube	A00000162
Metal reactor tube	A00000321
Cleaning kit for metallic ash collector	A00000353
Ceramic ash collector	A00000198
Metallic ash collector	A00000322
Quartz ash collector	A00000161
Anhydron, 454g	A00000225
Super-Absorbent Powder, 10g	A00000317
Quartz wool, 50g	A00000154
Vcopper High Reduction Efficiency, 470g	A00000240
Copper oxide, 50g	A00000157
Velpcatalyst with inert layer, 36g	A00000320
EDTA Certified, 100 gr	A00000149
Rice Flour, 30g	A00000235
Tin Foil Cups, 150pcs	A00000153
Tin Foils 50x50mm, 450 pcs	A00000260
Mold for tin foils 50x50mm	A00000262
Tin foil cup closing device	A00000217
Kit for TOC/sample preparation	TA00000378
Silver Foil 35x35mm, 100 pcs	A00000371
High temperature sealing grease	A00000236
IQ/OQ/PQ CN Manual	A00000370
VELP Ermes 1 Year Connection	E00010012
VELP Ermes 3 Year Connection	E00010036

## GLP Good Laboratory Practice

<b>AOAC</b>	<b>AACC</b>	<b>ASBC</b>
<b>ISO</b>	<b>IFFO</b>	<b>AOCS</b>
		<b>OIV</b>

## FIELDS OF APPLICATION

The NDA Series is extremely versatile, being suitable for nitrogen and protein determination in several kinds of sample, in accordance with official AOAC, AACC, ASBC, ISO and OIV methods.

## INSTRUMENT - CODE

<b>NDA 701</b>	230 V / 50-60 Hz	<b>F30800070</b>
<b>NDA 702</b>	230 V / 50-60 Hz	<b>F30800080</b>

## SUPPLIED WITH



**A00000193**  
Start-up kit



**40001065**  
Autosampler with disc 1



**40001504**  
DUMASoft™  
Software



**40001693**  
USB cable for PC, 5m



**10003926**  
RS232 Cable  
for balance

The Dumas Analyzer is supplied with all necessary parts to perform up to 1000\* analyses (inclusive of catalysts, copper, quartz wool, reagents and seals). In addition it contains chemicals and small consumables spares for maintenance.

Use Genuine Velp Consumables accessories to get the best performance from your NDA



FOOD, FEED AND BEVERAGE INDUSTRY

ENVIRONMENTAL INDUSTRY

PHARMACEUTICAL AND CHEMICAL INDUSTRY



# TECHNICAL DATA

	NDA 701	NDA 702
METHOD OF ANALYSIS	Dumas method / Combustion	Dumas method / Combustion
DETECTOR	Innovative autocalibrating TCD (no need for a reference gas)	Innovative autocalibrating TCD (no need for a reference gas)
CARRIER GAS	Helium	Helium or Argon
SAMPLE WEIGHT	Up to 1 g	Up to 1 g
MEASURING RANGE	Up to 200 mgN	Up to 200 mgN
ANALISIS TIME	2-5 min	2-5 min
AUTOSAMPLER CAPACITY	Up to 4 discs, 30 positions each	Up to 4 discs, 30 positions each
AUTOSAMPLER TYPE	Pneumatic	Pneumatic
REPRODUCIBILITY (RSD)	< 0.5% for EDTA standards approx. 100 mg (9.57% N)	< 0.5% for EDTA standards approx. 100 mg (9.57% N)
RECOVERY	> 99.5%	> 99.5%
DETECTION LIMIT	0.003 mg N (He)	0.001 mg N (He) or 0.01 mg N (Ar)
COMBUSTION TEMPERATURE	1030 °C / 1886 °F	1030 °C / 1886 °F
HELIUM (He) / ARGON (Ar)	purity 99.999% (grade 5.0)	purity 99.999% (grade 5.0)
OXYGEN (O <sub>2</sub> )	purity 99.999% (grade 5.0)	purity 99.999% (grade 5.0)
CARRIER GAS PRESSURE	2 bar	2 bar
OXYGEN (O <sub>2</sub> ) PRESSURE	2 bar	2 bar
CONNECTIVITY	Cloud via LAN or Wi-Fi	Cloud via LAN or Wi-Fi
INTERFACES	USB, RS232, Velp Ermes Cloud platform	USB, RS232, Velp Ermes Cloud platform
POWER	1400 W	1400 W
POWER SUPPLY	230 V / 50 - 60 Hz	230 V / 50 - 60 Hz
WEIGHT	54 kg 119 lb	54 kg 119 lb
DIMENSIONS (WxHxD) (including autosampler)	655 x 690 x 410 mm 25.8 x 27.0 x 16.1 in	655 x 690 x 410 mm 25.8 x 27.0 x 16.1 in



## SERVICE & SUPPORT

VELP Scientifica products are designed by our engineers to resist years of laboratory use.

Our products are manufactured with premium materials to guarantee the best performance with maximum safety.

According to our experience, a proper and regular maintenance is necessary to ensure the highest performance of analytical instrument. Velp Service Department and Velp Official Partners are always ready to offer you maintenance and service support tailored to your needs.

### GET THE SUPPORT YOU NEED CHOOSING THE OPTIONS:

- Installation
- Preventive Maintenance
- Help-desk and Remote support
- Technical Assistance
- Analytical Support
- Calibration Certification



We reserve the right to make technical alterations  
We do not assume liability for errors in printing, typing or transmission

VELP Official Partner

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