

# NABLEND SERIES

REFERENCE AND CHECK FUELS BLENDING  
FOR OCTANE AND CETANE NUMBER TESTING



# NABLEND SERIES



## P/N 52100 - NABLEND 8873

Automatic octane - Reference Fuel Blending Unit - 3 tanks

## P/N 52200 - NABLEND 8877

Automatic octane and cetane - Reference Fuel Blending Unit - 5 tanks

## P/N 52300 - NABLEND 8879

Extended Automatic octane/cetane - Reference Fuel Blending Unit - 6 tanks

- For the preparation of reference fuels for the octane and cetane number determination according to ASTM D 2699, ASTM D 27002 and ASTM D 613 standard methods.
- Reference and check fuel blending.
- Built-in touch screen computer and printer.
- Complete and automatic documentation of prepared reference fuels.
- Excellent accuracy and speed.

## OCTANE NUMBER

The octane number is one of the most important properties of a fuel gasoline showing the fuels performance in an internal combustion engine.

The method for determining the octane numbers is described in ASTM D 2699 and 2700 and is based on comparing a fuel in the ASTM engine under standard conditions with reference fuels of known ratings.

The only standard method for determining the octane number is based on WAUKESHA CFR® engines. Other methods are also used in the last time but they are not according to any standard.

NABLEND series automatic blending units for ASTM reference and check fuels are used in conjunction with WAUKESHA CFR® engines.





## AUTOMATIC BLENDING BY WEIGHT

- Automatic blending by weight involves the use of a computer, able to communicate with the operator, to read the electronic balance and to control the blending process.
- After the required volume and octane number are given the computer will make the necessary calculations, will start and will control the blending process until the reference fuel is made.
- The method is fast, accurate, comfortable and needs no special attention from the operator.
- The difference in the temperature of the blending components are stored in the database and can be edited if necessary.
- The default properties of the standard blending are stored in the database and can be edited if necessary.
- The results are also stored in an internal database and certificates can be printed out for all blends. The XML and Intranet database interface allows an easy remote access to stored data.

## CETANE NUMBER

The method for determining the cetane number is described in ASTM D613.

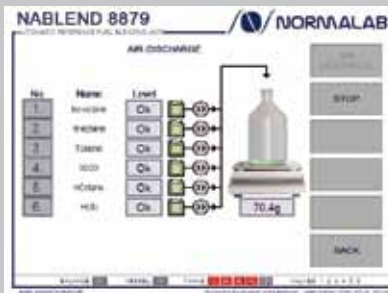
The cetane number of a diesel fuel is determined by comparing its ignition quality with those for blends of reference fuels of known cetane numbers under standard operating conditions.

Cetane number reference and check fuels can be prepared using:

- NABLEND 8873 (P/N 52100) special octane blending unit and
- NABLEND 8879 (P/N 52300) or NABLEND 877 (P/N 52200) combined blending units.



# NABLEND INTERNET ENABLED SOFTWARE



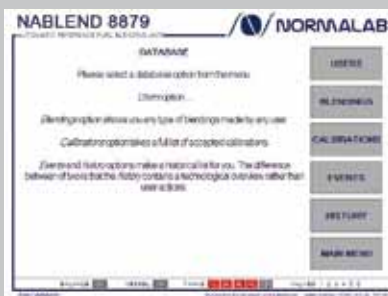
The Windows® CE 3.0 based software - built on the specially designed Normalab Platform assures the highest level of software reliability ever reached on Windows® platform, maintaining in the same time the easy connectivity and compatibility to plant systems and Windows® networks.

NABLEND series of blending units are the first laboratory instruments, having XML based intranet user interface. An unlimited number of units can be remotely accessed and controlled from any authorized PC from the network.



After a standard user name and password based login there is a choice for:

- Octane or Cetane reference fuel blending
- Reference (normal) fuel blending
- Check (toluene) fuel blending
- Free blending
- Pumps calibration
- Recall test results



After selecting the standard method and giving the blending parameters there is nothing else to do just press:

**START BLENDING**



A micro controller independently controls the blending process.

The strokes of the dosing pumps will be decreased below 10 mg/stroke at the end of a dosing cycle, in order to reach nearly perfect accuracy at the highest speed.



The database will not only store the blending parameters, but the whole history of logins, operation, remote database access, remote service access and internal technological events.

## EASE TO USE

Using the built-in touch screen the operator will only type the target octane/cetane number and sample volume and the blending unit will automatically prepare and certify the reference fuel with an accuracy of 0.01 ON or CN.

The tanks are filled, when the level switches installed in the tanks will indicate LOW LEVEL.

The filling will be stopped at the HIGH LEVEL signal. The volume of the tanks is 10 liters each (in option).

The filters protecting the dosing system can be easily cleaned time by time by the operator.



## COMPLETE DOCUMENTATION OF BLENDS

The results are stored in a database and certificates can be printed for all blends. The certificates will contain all necessary data like:

- serial number of the blend given by the computer
- name of the operator
- date and time
- effective octane/cetane number and volume
- targeted octane/cetane number and volume
- consumption of blending components

## REFERENCE AND CHECK FUELS BLENDING

- **NABLEND 8873 - P/N 52100**  
having 3 tanks, is intended to be used for the automatic preparation of: octane reference fuels composed of ISO-OCTANE and N-HEPTANE and check fuels composed of ISO-OCTANE, N-HEPTANE and TOLUENE.
- **NABLEND 8877 - P/N 52200**  
having 5 is intended to be used for automatic preparation of octane and cetane reference fuels. It integrates in one single unit the functionality of NABLEND 8873 (P/N 52100) and NABLEND 8875 (P/N 52000).
- **NABLEND 8879 - P/N 52300**  
with 6 tanks, will be used for automatic preparation of octane or cetane reference fuels. It integrates in one unit and expands the functionality of NABLEND 8873 (P/N 52100) and NABLEND 8877 (P/N 52200) for a total number of 6 different components.

Due to the flexibility of the software all the above units can be used for free blending by weight of 2, 3, 5 or 6 different fluids.



## SPECIFICATIONS

The simplicity and reliability of the construction, make the NABLEND units extremely suitable for long-term error free operation under the special conditions of an octane laboratory. The free blending capability creates opportunities for different applications, like special fuel blending for special engines.

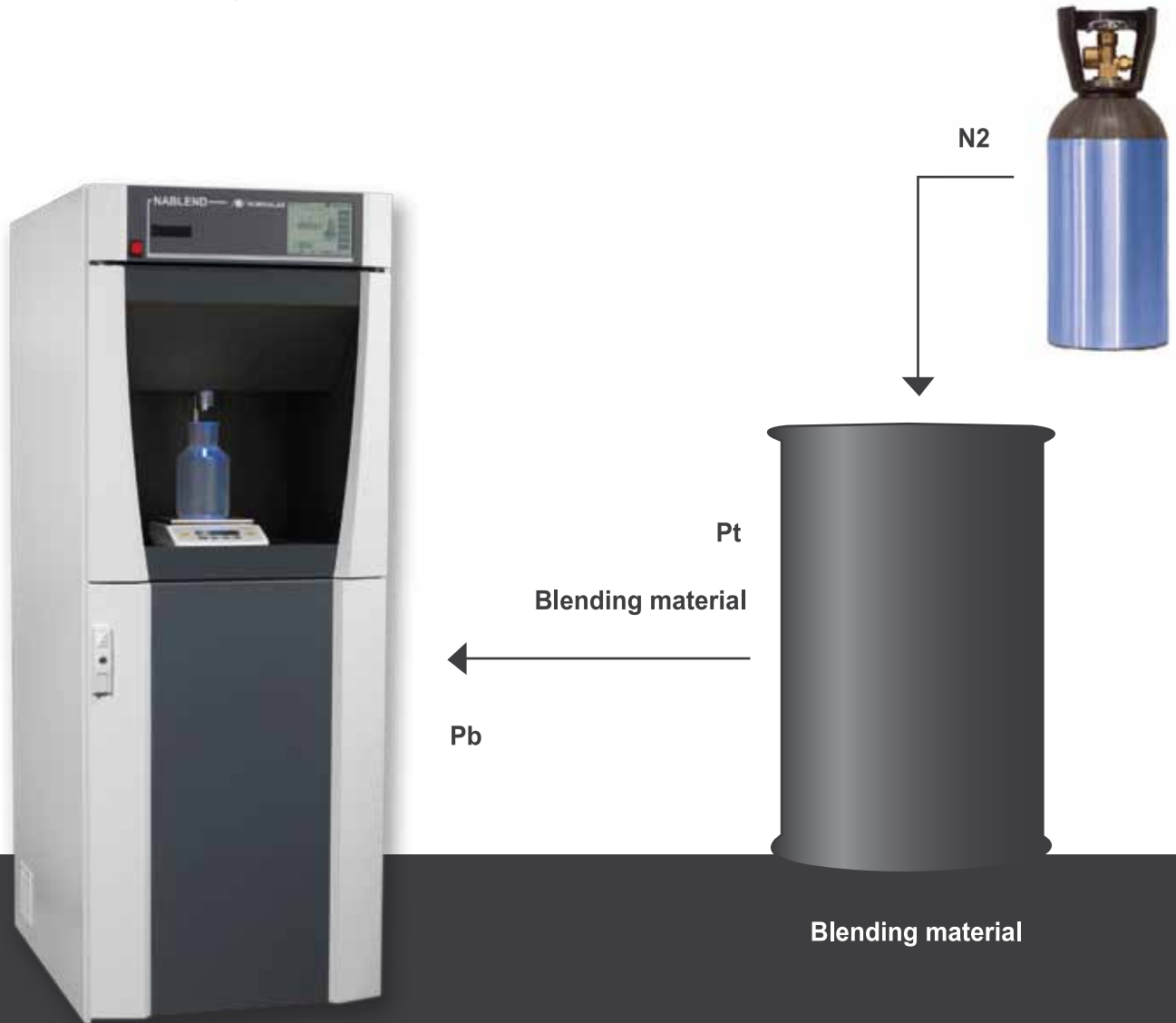
The extensive use of the latest electronic, computing, software, networking and communication technologies places the NABLEND series of automatic blending units at the cutting edge of the laboratory instrument development.



# AUTOMATIC REFFIL

Filling the internal tanks from external tanks is fully automatic.  
2 alternatives to fill the 10L tank:

- Gravity principle «level0». External tank should be positioned higher than the blending unit (2m).
- Under nitrogen pressure.



TANK POSITION	N2 PRESSURE
2m Heigher	0 bar
Same level	0,15 - 0,25 bar
1m Lower	0,25 - 0,35 bar
2m Lower	0,35 - 0,45 bar

## ORDERING INFORMATION

### NORMALAB production - Automatic reference fuel blending units

**NABLEND 8873 (P/N 52100)** Automatic Octane Reference fuel - blending unit - 3 tanks  
**NABLEND 8877 (P/N 52200)** Automatic Octane/Cetane Reference fuel - blending unit - 5 tanks  
**NABLEND 8879 (P/N 52300)** Automatic Octane/Cetane Reference fuel - blending unit - 6 tanks

#### Standard Methods

Used for the preparation of reference and check fuels for octane and cetane number determination according to:

- ASTM D 2699
- ASTM D 2700
- ASTM D 613

#### Software

WINDOWS® based software, Access for WINDOWS® CE database. CASON ProcessIT application software.

#### Printer

56 mm paper ribbon printer.

#### Accuracy

± 0.01 ON or CN / 400 ml.

speed: 2 min / 400 ml

Cabinet: Industrial construction

Ventilation: 60 liter / min

Power Supply: **110/120 V, 60 Hz or 220/240 V, 50 Hz**

Dimensions: (W) 61 cm x (D) 82 cm x (H) 160 cm

Containers: 3\*10 liter (NABLEND 8873)

5\*10 liter (NABLEND 8877)

6\*10 liter (NABLEND 8879)

Weight: 160 - 170 kg (with empty tanks)



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