Consort

Artistic in science

20-06

Product catalogue

Laboratory pumps

Series LABOPORT® SD
N 820.3 FT.40.18 Vacuum Pump

- Pure transferring and evacuation
- Highly compatible with vapours and condensation
- Chemically-resistant
- Therefore suitable for highly aggressive or corrosive
- Gases and vapours
- Maintenance-free
- Environmentally friendly
- Gastight, leakage rate approx. 6 x 10-3 mbar x l/s, not tested in serial production.

Description

The chemically-resistant series N 820.3 FT.40.18 diaphragm pump is a twin-head unit with an integrated KNF self-drying system. There is a wide range of applications for this pump in laboratories, especially whenever clean vacuum is required and moist gases must be pumped down. Examples include vacuum-drying of vacuum drying chambers (for drying or heat-treating substances and components) or steam sterilizers for sterilizing instruments, vessels, filters and textiles.

Due to its high resistance to aggressive media, this pump can be used universally. The heart of these very compact pumps are KNF structured diaphragms (PTFE-coated). These patented diaphragms were stress-optimized using the Finite Elements method. As a result, we were able to make the pumps smaller while increasing the service life of the diaphragm.

The KNF self-drying system allows condensed liquid to be blown out of the pump heads at high speed during evacuation. The vacuum in the recipient remains constant. The drying cycle can be adjusted to the requirements of the individual process using three variables. After drying, the pump reaches a better vacuum and is able to evacuate significantly faster compared with pumps without a drying system.

Technical data

Code	Description
Delivery (l/min)1)	20
Ultimate vacuum (mbar abs.)	10
Operating pressure (bar g)	1
Connectors for tube (mm)	ID 10
Permissible gas and ambient temperature	+5...+40 °C
Mains	230V/50Hz
Motor protection	IP 44
Power P1	120 W
Operating current	0.7 A
Weight	9.6 kg
Dimensions L x H x W	312 x 220 x 177mm
With thermal switch and power fuse	

Ordering codes

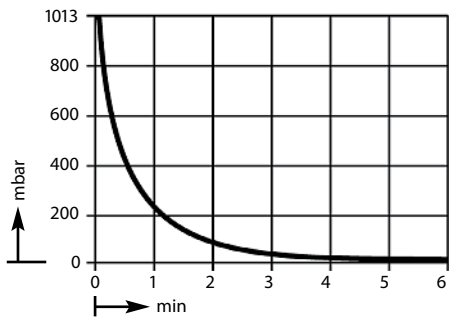
Code		Pump head	Diaphragm	Valves
KNF_8203FT4018	**N 820.3 FT.40.18**	PTFE	PTFE-coated	FFPM

Spare parts

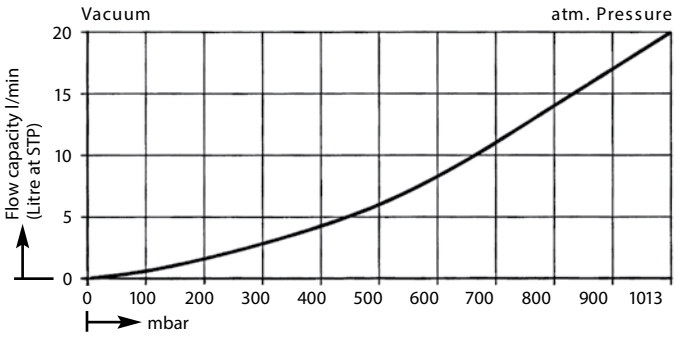
Code		Description
KNF_8203_SP	**057358**	Spares kit

Dimensions and performance characteristics

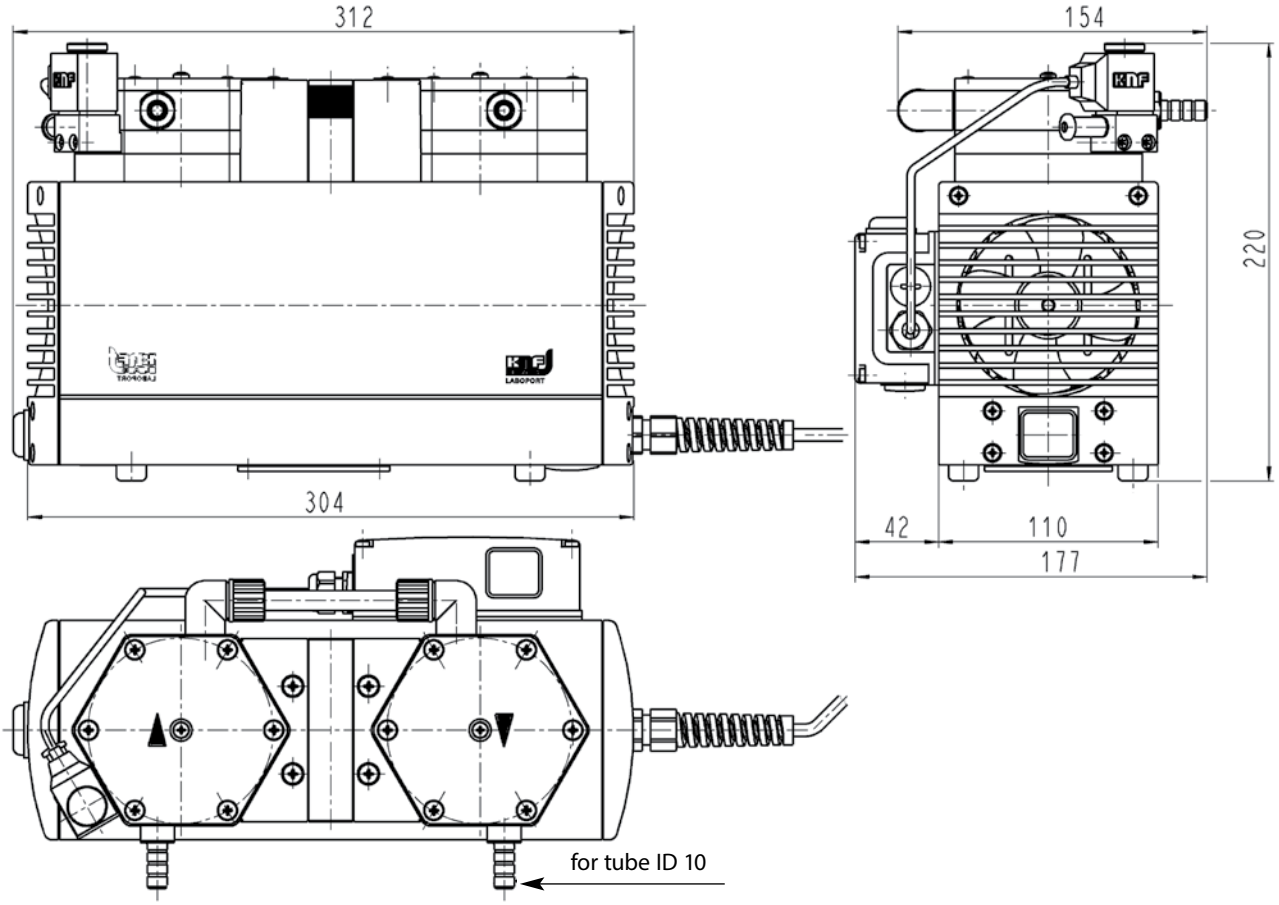
Pump down time for 10 l receiver



Performance characteristics



Dimensions (mm)



Diaphragm Pumps for Air, Gases and Vapours
Series LABOPORT®
N 820 FT.18, N 820.3 FT.18 Pumps

- 100% oil-free transfer
- Pure transferring and evacuation of gases
- Highly compatible with vapours and condensation
- Chemically-resistant
- Therefore suitable for highly aggressive or corrosive gases and vapours
- Maintenance-free
- Environmentally friendly
- Gastight, leakage rate approx. 6 x 10-3 mbar x l/s, not tested in serial production.

Description

The chemically-resistant series N 820 and N 820.3 diaphragm pumps are single- and double-head, dry-running devices used in a wide range of laboratory applications. They transfer and pump down without contamination.

The heart of these very compact pumps is a KNF structured diaphragm. This patented diaphragm was stress-optimized using the Finite Elements method. As a result, we were able to make the pumps smaller while increasing the service life of the diaphragm.

Technical data

Code	N 820 FT.18	N 820.3 FT.18
Delivery (l/min)1)	20	20
Ultimate vacuum (mbar abs.)	100	8
Operating pressure (bar g)	1	1
Connectors for tube (mm)	ID 10	ID 10
Permissible gas and ambient temperature	+5...+40 °C	+5...+40 °C
Mains	230V/50Hz	230V/50Hz
Motor protection	IP 44	IP 44
Power P1	130 W	120 W
Operating current	0.9 A	0.7 A
Weight	7.1 kg	9.3 kg
Dimensions L x H x W	268 x 207 x 159 mm	312 x 207 x 154 mm
With thermal switch and power fuse		
Motors with other voltages and frequencies on request. 1) at atm. pressure		

Ordering codes

Code		Pump head	Diaphragm	Valves
KNF_820FT18	**N 820 FT.18**	PTFE	PTFE-coated	FFPM
KNF_8203FT18	**N 820.3 FT.18**	PTFE	PTFE-coated	FFPM

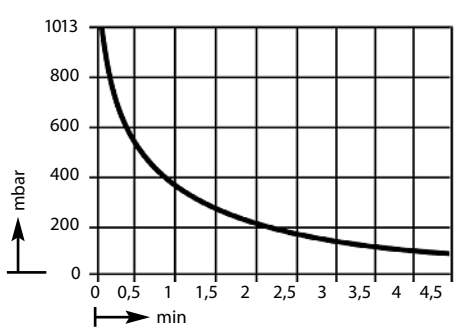
Spare parts

Code		Description	Details
KNF_820_SP	**058078**	Spares kit	for N 820 FT.18
KNF_8203_SP	**057358**	Spares kit	for N 820.3 FT.18

Dimensions and performance characteristics

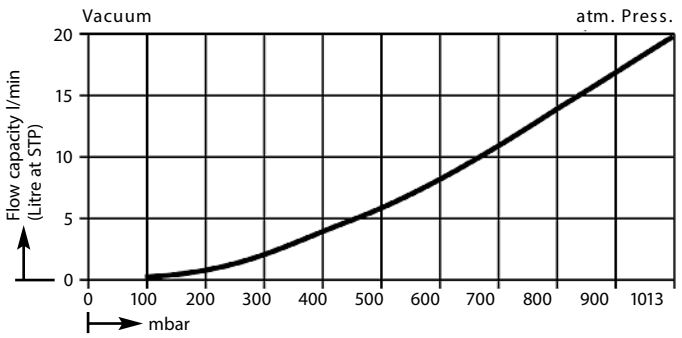
Pump down time for 10 l receiver

N 820 FT.18



Performance characteristics

N 820 FT.18



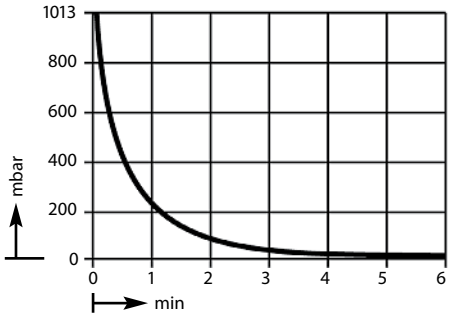
KNF reserves the right to make changes.

KNF 01/2013 Produced in Germany

Dimensions and performance characteristics

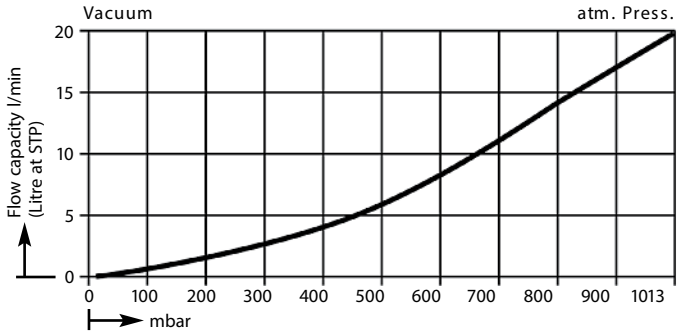
Pump down time for 10 l receiver

N 820.3 FT.18



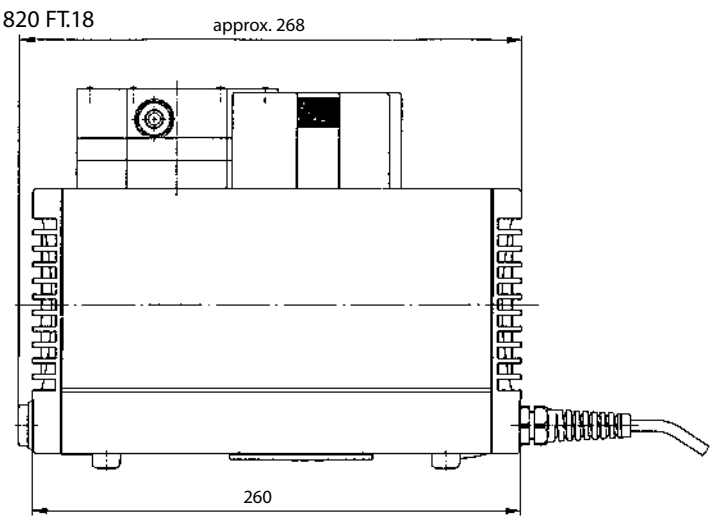
Performance characteristics

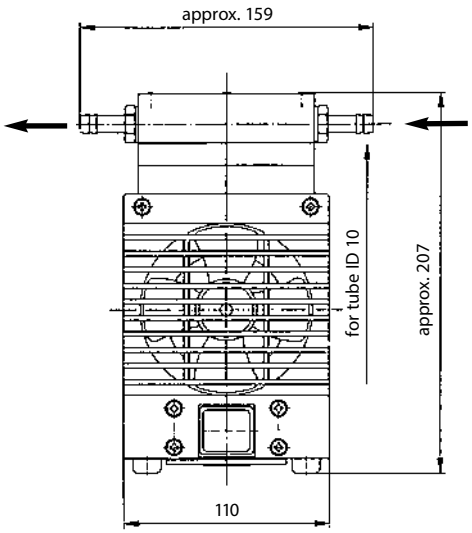
N 820.3 FT.18



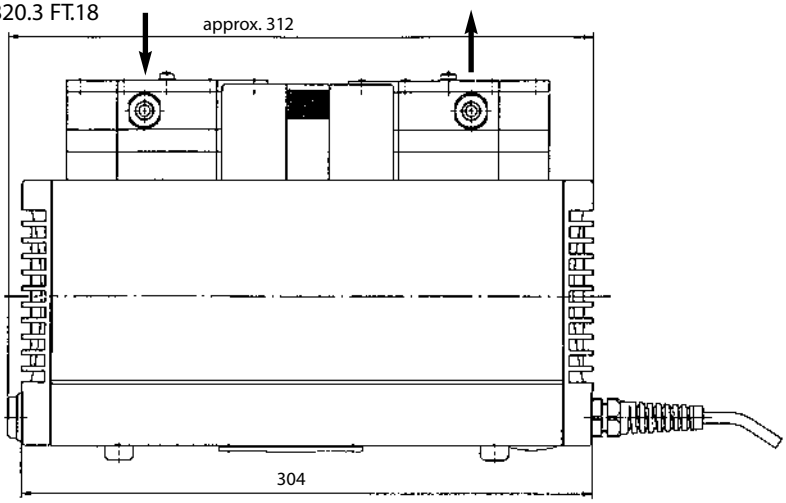
Dimensions (mm)

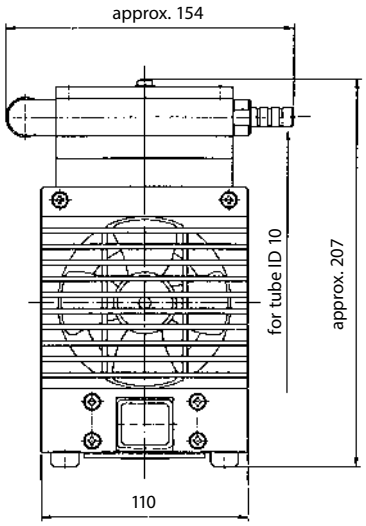
N 820 FT.18





N 820.3 FT.18





Laboport SD vacuum pumps with modullary accessory

A practical, complete system, with a base plate as well as a filter and seperator component.

SR820.40 comprises N820.FT.40.18

Description

The chemically-resistant series N 820.3 FT.40.18 diaphragm pump is a twin-head unit with an integrated KNF self-drying system. There is a wide range of applications for this pump in laboratories, especially whenever clean vacuum is required and moist gases must be pumped down.

The heart of these very compact pumps is a KNF structured diaphragm. This patented diaphragm was stress-optimized using the Finite Elements method. As a result, we were able to make the pumps smaller while increasing the service life of the diaphragm.

Ordering codes

Code		Pump head	Diaphragm	Valves
KNF_SR820.40	**SR820.40**	PTFE	PTFE-coated	FFPM

ABSOLUTE READINGS
The instrument shows the actual value without compensating to a reference temperature.

AC-ADAPTOR
An internationally approved mains-plug with built-in low voltage transformer for a safe supply of energy to instruments.

ACCURACY
Maximum electronic error of the measured unit. The accuracy of an electrochemical determination such as pH, conductivity, dissolved oxygen & ion-selective measurements is mainly limited by the electrodes and calibration solutions.

ALARM
An alert sounds or a relay is closed when readings stray outside pre-set limits.

ALTERNATING DISPLAY
The meter can automatically scan all selected inputs for display or transmission to a computer or printer.

AUTOMATIC CROSS-OVER
When the resistance of an electrophoresis apparatus changes during a run, the power supply is able to switch automatically between constant voltage, constant current and constant power.

BATTERY CAPACITY
Percentage of remaining battery capacity.

BAUD RATE
Communication speed, in bits/second (b/s), of the digital interface (RS232).

BUFFER
A solution of buffered species where the pH tends to remain constant if diluted or concentrated.

Pre-programmed pH buffers: 1.68/ 2.00/ 4.00/ 4.01/ 6.87/ 7.00/ 9.18/ 9.21/ 10.01/ 12.00/ 12.45.

User specified pH buffers: special tables can be stored for future calibrations.

CALIBRATION REMINDER
A timed calibration procedure facilitates considerably GLP management by prompting the user when his instrument needs to be recalibrated.

CAPACITIVE COMPENSATION
The capacity of the electrode and its cable falsifies the measurement at very low conductivities. A capacity compensation allows to compensate for these errors.

CELL
The 2-pole design is the most commonly used conductivity cell. The electrodes are made of platinised platinum. The cell must be replaced or re-platinised if the plates become fouled.

The 4-pole design reduces considerably the problems of polarisation and fouling. By utilising four electrodes, no current flows through the measuring circuit. The AC-current is only applied to the outer pair of rings allowing the inner pair of electrodes to measure the voltage without any polarisation effects.

CELL CONSTANT
The cell constant (cm-1) of a conductivity electrode is determined by the length (cm) of the column of liquid between the plates divided by the area (cm2) of the plates.

CONCENTRATION
Concentration measurement with an ion selective electrode requires a minimum of chemical know-how to make successful ion selective determinations.

CONDUCTIVITY
The conductivity is a measure of the solution's ability to conduct electric current. The basic unit is Siemens/cm (S/cm). It is measured by an electrode consisting of two platinum plates to which an alternating potential is applied. The corresponding current is proportional to the conductivity of the ionic solution in which the electrode is dipped.

DATA-ACQUISITION
Connect the instrument to a computer via an USB, RS232, RS485 interface for bi-directional communication capabilities. Most instruments require no special software and feature an advanced easy to use data acquisition fully compatible with spread-sheet.

DATA-LOGGING
Stores automatically or manually the measured values (+ °C & time/date) in a built-in non-volatile memory.

GLP
Good Laboratory Practices procedures help to increase accuracy through calibration reports.

GROUND LEAKAGE
Leaking or dirty electrophoresis apparatus are dangerous, since the applied high voltage may result in an electric current flowing through the operator to the ground.

IDENTIFICATION NUMBER
Several instruments connected to the same computer can easily be identified when specific numbers are allocated to them.

INPUT
Several types of connectors are used according to the application. Check the specifications of meter-input and electrode-plug on their compatibility.

ISO-pH
Zero-point of a pH electrode. A new pH electrode has an ISO-pH between 6.5 and 7.5 pH.

MINIMUM/MAXIMUM MEMORY
Recalls the lowest/highest values ever measured since the last calibration.

mV
Electrode potential is read in mV.

ON/OFF CONTROL
Simple control system in which the relays are continuously closed when a pre-set level is exceeded.

ORP
Oxido-Reduction-Potential (the reducing or oxidising capability of a solution).

PASSWORD PROTECTION
For tamper-proof storage of parameters and data, a secret personal code protects the instrument against any undesired access.

pH
The pH is a measurement for the acidity or alkalinity of a solution. In pure water the hydrogen ion (H+) and hydroxyl ion (OH-) concentrations are equal at 10-7 M (25°C). To provide a convenient and effective means of defining acidity and alkalinity, the negative logarithm of hydrogen ion activity is used. The pH is calculated from the potential between a glass and a reference electrode (Nernst equation).

PROPORTIONAL CONTROL
The control relay will pulse at a rate proportional to the regulation difference. When the difference is superior to a pre-set maximum value, the relay is continuously activated. However, when reaching a pre-set level the wait-time between the pulses will increase gradually in order to perform very accurate regulations.

Pt100
Platinum resistance thermometer (100 Ω at 0°C). It requires a low resistance cable for highest accuracy.

Pt1000
Platinum resistance thermometer (1000 Ω at 0°C). Less errors when using longer cables.

QUALITY MANAGEMENT
Measuring equipment should be calibrated on a regular basis (GLP). The accuracy of measurements is only limited by the electrodes and calibration solutions. At any moment, a complete documentation about the electrodes and calibration solutions can be printed or sent to a computer. This includes meter settings, data about the last calibration and a comparison with the previous calibration. The use of certified calibration solutions is strongly recommended. For very accurate quality measurements fresh standard solutions should be used for each calibration.

QUANTIFICATION OF VINCENT

The quantification of Vincent is a measurement for the energy stored in an organism. It expresses the maximum dissipation of energy by a chemical or biochemical reaction. The basic unit is Watt (W) but it is more convenient to use µW (micro-watt). It is calculated from the ORP, referenced against a hydrogen electrode, and the resistance.

RANGE LOCK

Allows to lock the initial conductivity measuring range when titrating in order to avoid cross-over errors due to varying measuring frequencies and linearity errors of the conductivity cell.

REAL TIME CLOCK

Shows time and date on the display.

REDOX POTENTIAL

The potential developed by a metallic electrode when placed in a solution containing a species in two different oxidation states. It is usually measured by a combination platinum electrode.

REFERENCE TEMPERATURE

Conductivity measurements are temperature dependent. Therefore, the readings should be referenced to a standard temperature.

RESISTIVITY

Electrical resistivity is the reciprocal of Conductivity. The basic unit is Ohm. cm (Ω.cm). While the ion concentration of a solution decreases, the resistivity rises up to a maximum of 18.3 MΩ.cm (absolute pure water at 25°C).

RESOLUTION

Smallest possible reading of the measured unit. More sophisticated meters allow to select the desired resolution. Unlike other meters, the CONSORT models round off the last digit rather than simply truncating digits outside the display range.

rH2

The rH2 is a measurement for the level of electronic exchanges between water and dissolved ions. It enables to study incomplete, indeterminate and very diluted aqueous redox solutions. It is defined as the negative logarithm of molecular hydrogen ion activity, calculated from the pH and the ORP referenced against a hydrogen electrode.

RS232

Digital interface, transmits the displayed values and calibration data to a printer or computer.

RS485

Allows to connect several process controllers for bi-directional communication with a computer. It allows multiple devices (up to 32) to communicate at half-duplex on a single pair of wires, plus a ground wire, at distances up to 1200 meters.

SALINITY

Salinity gives an indication of the salt content of sea water. It is calculated from the conductivity referred to 15°C. The salinity is the ratio between the total salt content (g) and the total weight of the sea water (kg). Hence salinity can be expressed in ppt (parts per thousand).

SLOPE

Percentage which relates the actual behaviour of a pH electrode to the Nernst's law. A new electrode has a slope between 95 and 100 %.

S/S RELAY

A solid-state relay contains no mechanical contacts. Long life, compact design and spark-free switching are its main advantages. It should not be used for controlling very low power loads, as the small leakage current can cause unwanted switching-on.

STABILITY INDICATION

A decimal point flashes until the electrode output remains constant, then readings can be recorded.

TDS

Total Dissolved Salts of a solution gives an indication of the total ion concentration. Due to ionic interactions within a solution, the salt concentration cannot easily be related to conductivity. As the dissolved solids are generally unknown, a TDS measurement is always referred to a solution of pure Sodium Chloride.

TEMPERATURE COEFFICIENT

Each solution has its own temperature coefficient (%/K). As this coefficient also varies with temperature, a standard conductometer cannot achieve a precise temperature compensation over a wide span of temperatures. However, a research grade meter is able to plot special temperature curves for each individual type of solutions in its non-volatile memory. Specific temperature coefficients can also be entered for special applications. For standard applications, the non-linear function for natural waters (EN27888) is used.

TEMPERATURE COMPENSATION

Corrects readings for variations in electrode response due to temperature effects.

THERMOCOUPLE

Thermocouples basically consist of two dissimilar wires (each made of a different alloy). One end is twisted or soldered to form a measuring junction. The other end is connected to a thermometer and forms the reference junction. The signal is a small voltage (µV) proportional to the temperature gradient between the measuring and reference junctions. Thermocouple probes are ideal to cover greater lengths. They also have a great temperature range and can easily pass through e.g. oven doors. Response time is faster than with Pt100 probes. Accuracy, stability and repeatability are less than with Pt100 probes.

USB

Universal Serial Bus is a standard designed to eliminate the guesswork in connecting peripherals to a computer.

VOLT-HOUR INTEGRATOR

The distance at which molecules migrate in an electrophoresis apparatus depends on the applied voltage and run-time ($\int V.dt$). In order to achieve reproducible experiments, it is recommended to use a volt-hour integrator rather than a simple timer.

ZERO POINT (Eo)

Standard pH meters assume a pH electrode to supply a zero potential at 7 pH. Electrodes for special applications (e.g. stomach pH measurements) may have a different zero point. An adjustable zero point correction feature will allow users to measure with these electrodes.

General terms

Art. 1
Unless otherwise agreed in writing, the legal relationship between the parties is governed by the present general terms, of which the customer declares to have taken cognisance, and which prevail over the customer's possible terms of purchase.

Art. 2
All quotations are without engagement. Prices do not include taxes. Any price stated is based at all times on the salaries, social charges and prices of materials obtaining on the date of the quotation. Official price modifications as arranged by legal dispositions automatically entail equivalent modifications of the prices stated in the contract. This proportional increase can also apply to part of the order or work.

Art. 3
Transport or dispatch of our goods by any means of transport is at the consignee's risk, even with carriage paid.

Art. 4
If our firm acts as an intermediary, the guarantee on the goods supplied by us is restricted to the guarantee given to us by the supplier or manufacturer. If the goods are subject to formal guarantee, defective, material will be repaired or replaced, but no claims for any other damage will be accepted.

Art. 5
All invoices are payable cash on the address of the invoice unless otherwise stipulated in the documents committing the parties or unless an expiry date is stated on the Invoice.

Art. 6
Contrary to art. 1583 of the Civil Code, any goods that are not paid in full remain our full property; in such case possible advance payments will serve as a compensation for costs and loss of profit.

Art. 7
Bills in arrears entitle us to suspend any further deliveries or services without prior notice, such to prevent debts from further increasing.

Art. 8
The supply of goods or services on a later date than the date stipulated for supply or service, if such is not caused by bad faith or a serious shortcoming of the supplier, shall never form a motive for suspending the order or the agreement, nor entitle the customer to claim any damages.

Art. 9
If default is made in cash payment or if payment is not carried out on the expiry date stated, the amount of the invoice shall bear a conventional interest of 1.5% per month as from the day on which the invoice as remitted or as from the expiry date stated, such by right and without any formal notice. Each month started shall be charged as a full month.

Art. 10
Moreover, by way of a fixed and irrevocable condition, the amount of the invoice shall be increased by 15% with a minimum of 200 EUR, by right and without formal notice, as a compensation for recovery costs of the claim (both staff and administration costs, management and follow-up of the file, influences on financial management, etc.), in application of art. 1147 C.C. and 1152 C.C.
This compensation is due apart from the moratory interests, the recoverable procedure costs and the possible compensation for material damages and loss of profit.
The parties thus agree that this compensation is fixed and that, contrary to art. 1231 C.C. It cannot be modified, even when the shortcoming is only partial.

Art. 11
Cheques and bills of exchange are only accepted as payment after their repayment. Possible costs are at the expense of the purchaser or commissioner.

Art. 12
The drawing and/or accepting bills of exchange or other transferable documents does not imply a novation or deviation from the general terms. The acceptance costs of bills of exchange are at the expense of the purchaser or commissioner.

Art. 13
If one invoice remains unpaid on its expiry date, the balance due of any other invoices, even when not expired, are immediately recoverable by right.

Art. 14
In the event of a dispute, only the courts of Turnhout, Belgium, shall have competence.

Art. 15
Any complaints regarding the supply of the goods and services shall be made on termination and be confirmed by a motivated registered letter within 8 days of the date of supply. These complaints do not suspend the obligation of payment.

Art. 16
Remarks and restrictions concerning the invoice and/or the general terms therein stated shall be transmitted to us by motivated registered letter within 8 days of date of invoice; for the settlement of disputes this period amounts to 30 days. If an order form is signed by a purchaser or commissioner, the regulations of the general terms stated on the order form shall apply.