

# MICRO-DIAPHRAGM LIQUID PUMPS

## UNF1.60

SECTION 200.42



### Concept

KNF micro diaphragm liquid pumps are based on the principle of the oscillating displacement pump which is remarkably simple in design. The circular power from the motor is converted into vertical movement by an eccentric. This motion is then transferred to a diaphragm by means of a connecting rod which, in conjunction with an inlet and outlet valve, creates a pumping action.

The UNF 1.60 liquid pump can be mounted in any position. It delivers up to 650 ml/min and will operate against pressures of up to 87 PSI

### Features

#### Small and powerful

Micro design and maximum performance resulting from built-in technology are the outstanding characteristics of these products.

#### Self-priming

Sophisticated diaphragm technology and precise valve structures enable performances of 8.86 in.Hg suction or 87 PSI pressure.

#### Extreme chemical resistance

The use of the materials PP, PTFE, EPDM and FPM for the parts which come in contact with the liquid allows many neutral or corrosive liquid to be pumped

#### Dry running, durable and maintenance free

The carefully considered design of these pumps allows them to be run dry and ensures safe operation and a long life even under the most severe conditions.

### Areas of use

The versatility of KNF pumps allows a wide field of applications to be covered. Over many years our pumps have proved themselves in the following areas:

#### Analyzers

- Medical / pharmaceutical
- Environmental / water treatment
- Food / toxicology

#### Laboratory

- Filtration
- Chromatography

#### Cleaning industry

- Cuvette cleaning
- Sterilizers
- Industrial washing machines

#### Printing

- Ink jet printing
- Photographic / film development

Other applications for micro-diaphragm liquid pumps include: fuel cells, hydrogen generators, CD coating, dental technology, textiles and many more.

Performance Data			
Type	Flow rate (ml/min)	max. suction head (in.Hg)	max. pressure head (PSI)
UNF1.60DC	650	8.86	87
UNF1.60DCB	650	8.86	87

# The KNF Modular Concept of Selection

## General note

This datasheet provides an overview of the options with our NF1.60 pumps. Certain standard options will be explained in more detail where necessary.

## Flow curves

The flow curves illustrate how the flowrate alters in relation to the pressures before and after the pump. In the case of a combination of both we would be very happy to advise what the expected flow rate would be.

The values given in the curves are dependant upon the liquid, choice of head materials and the type of hoses being used. Therefore a certain deviation is to be expected.

**Note: The flow rate is measured with water at 20°C.**

## 1 Materials of head components

KNF offers a wide range of different materials for those parts which come in contact with the liquid thus allowing the possibility of pumping most liquids.

## 2 Motors

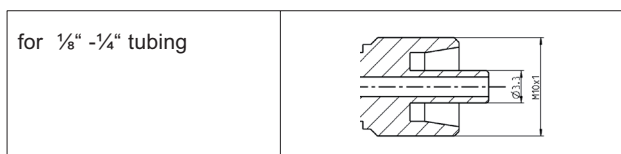
DC Direct current motor

DCB Brushless direct current motor  
This type of motor has no brushes which can wear down thus giving it a lifetime comparable with an AC motor.  
Option: For external command (PWM, 0-5V DC).

## 3 Voltages

Choose from the different electrical connection possibilities. Special variations are available.

## 4 Hydraulic connections



## Modules

Our versatile self-selection program allows you to personally determine the optimum characteristics that you require from your pump. Select your diaphragm pump from the following characteristics:

Pump type			
Basic model	Components		
	1	2	3
UNF1.60			

1	Materials of head components	
KP	Head Valves O-Rings Diaphragm Resonating diaphragm	PP EPDM EPDM EPDM PTFE
KT	Head Valves O-Rings Diaphragm Resonating diaphragm	PP FFPM FFPM PTFE covered PTFE

2	Motors
DC	Direct current motor
DCB	Brushless direct current motor

3	Voltages
12 / 24V	DC / DCB

# UNF1.60DC

# UNF1.60DCB

## Performance

Type	Flow rate at atmos. pressure (ml/min)	Max. suction head (in.Hg)	Max. pressure head (PSI)
UNF1.60DC	650	8.86	87

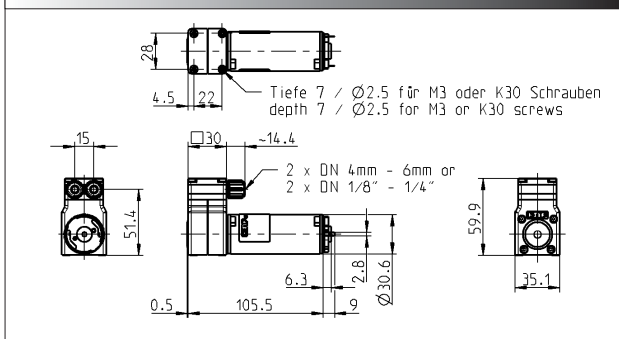
Type	DC
Voltage (V)	12 / 24
Power rating (W)	10
I max. load. (A)	0.8 / 0.4
I max. (A)	1.4 / 0.71
EMV guidelines	EN 55011
Weight (g)	320
Motor protection factor	IP 00

## Performance

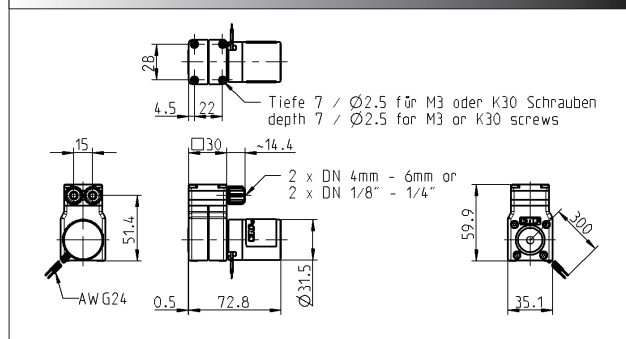
Type	Flow rate at atmos. pressure (ml/min)	Max. suction head (in.Hg)	Max. pressure head (PSI)
UNF1.60 DCB	650	8.86	87

Type	DCB
Voltage (V)	12 / 24
Power Consumption (W)	7.5
I Last max. (A)	0.6 / 0.3
I max. (A)	1.1 / 0.57
EMV guidelines	EN 55014-1 EN 61000-6-3 EN 61000-6-1 EN 55014-2
Weight (g)	210
Motor protection factor	IP 54

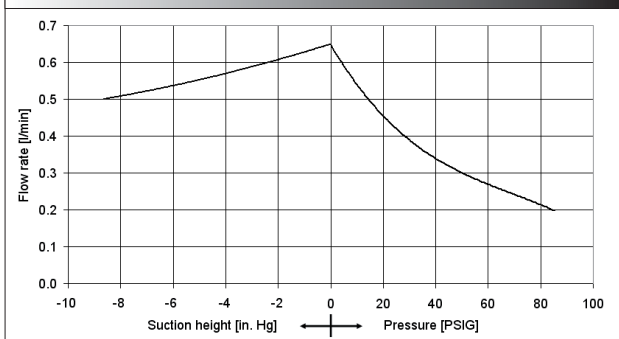
## UNF1.60DC



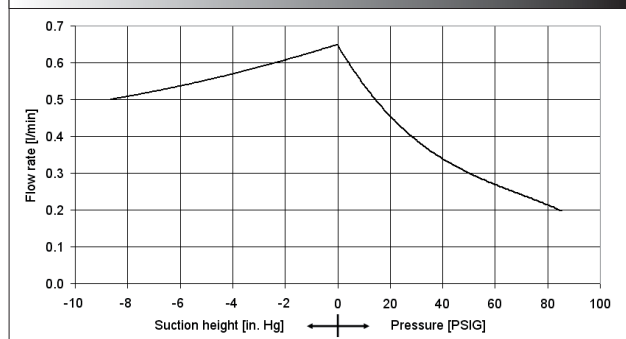
## UNF1.60DCB



## UNF1.60 Flow curve DC



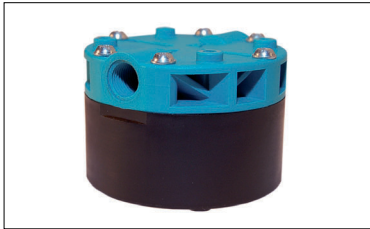
## UNF1.60 Flow curve DCB





## Diaphragm pressure control valve

The pressure control valve can be used for a more accurate control of flow against a fluctuating back pressure, metering into a vacuum, and from a pressurized system. Used correctly it can prevent damage to pumps, plumbing and other fittings.



## Pulsation damper

This versatile pulsation damper reduces the vibration in hoses and pipes and it helps to remove pulsation which might prevent the system from functioning correctly. It also protects instrumentation connected after the pump.

## Other accessories

- Tubing
- Shock mounts

## Options

- Other head materials
- Motors with special voltages or frequencies
- Specific customers requirements such as special connections (Molex, AMP, etc.)
- DCB motor with 4 leads
  - Input: 0-5 V
  - Output: impuls

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