



KNF Laboratory Liquid Pumps



Principle of the Diaphragm Pump

KNF 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 gentle pumping action.

Diaphragm Liquid Pumps are ideal for:

Applications that require low shear force, high repeatability and the ability to handle aggressive media

Fields of Applications

- Chemistry
- Synthetic organic chemistry
- Pharmacy
- Adhesives and glue
- Polymers & polymer coating
- Food technology research
- Detergents
- Water treatment research
- Biology, microbiology
- Biotechnology
- Fragrances



KNF liquid pumps product center, Sursee, Switzerland

Innovative technology worldwide

Founded in 1946, KNF Neuberger is a market leader in air, gas, and liquid oil-free diaphragm pumps. Since then, KNF has expanded to include 17 affiliated companies worldwide. Customers across the globe rely on KNF to supply high quality, durable, and innovative laboratory products for a wide range of applications.

KNF Neuberger, Inc.—located in Trenton, New Jersey—provides local sales, service, and manufacturing support to laboratory customers throughout the United States, Canada, and Latin America.

SIMDOS[®] 02

For fine dosing and metering



- Simple and intuitive operation
- Easy calibration
- Cycle mode
- Adaptable to fluid characteristics
- Self priming, can run dry
- Various control options
- Splashproof IP65, small footprint

Fields of application

- Chemistry
- Synthetic organic chemistry
- Pharmaceutical
- Adhesives and glue
- Polymers & polymer coating
- Food technology research
- Detergents

Hydraulic data

Flow rate	Dosing volume	Suction height	Max. pressure
30 µL/min–20 mL/min	30 µL–999 mL	6.6 ft. water	85 psig

Pump type

Code	Pump head	Diaphragm	Valves	Filter (1pc. included)	Tubing (2pc. included)
KT	PP	PTFE covered	FFKM Kalrez [®]	165212	166329
TT	PVDF	PTFE covered	FFKM Kalrez [®]	165210	166329
FT	PTFE	PTFE covered	FFKM Kalrez [®] *	165212	166329
ST	STAINLESS STEEL	PTFE covered	FFKM Kalrez [®]	165212	166329

* On request FFKM Chemraz[®]

Control type

S - Version	RC - Version	RC Plus - Version
<ul style="list-style-type: none"> • Manual operation 	<ul style="list-style-type: none"> • Manual operation • Analog control: 0–5 V, 0–10 V, 0–20 mA, 4–20 mA, from 1 to 100% • Start/Stop through logic control (TTL) 	<ul style="list-style-type: none"> • Reset/Prime through logic control (TTL) • Output signal fault alarm • RC cable for external control included
		<ul style="list-style-type: none"> • Same as RC • RS 232 port for PC control • RS 232 cable with D-Sub 9 connector included

Technical data

- Main supply 100–240 V / 50–60 Hz
- Ambient temperature allowed +5 to +40 °C
- Liquid temperature allowed +5 to +80 °C
- Viscosity settings up to 500 cSt**
- Accuracy +/-2% (nominal value)
- Repeatability +/-1%
- Power consumption 10 W
- Protection class IP65
- Dimensions: 150 H x 93 W x 144 D mm
- Weight: 0.9 kg
- UNF 1/4"-28 threaded ports
- Supplied with 1/8" OD x 1/16" ID tubing; other options available

** Reduced flow rate above 150 cSt

Model Numbers: FEM 1.02___.18 *Example: FEM 1.02KT.18RCP*
 Code: KT, TT, FT, or ST
 Control: S, RC, or RCP

SIMDOS® 02

Accessories

Valves kit

	ID-Nr.
FFKM Chemraz® special valves for certain chemicals	164984



Diaphragm pressure control valve with support when the feeding tank is above the pump or to dose into vacuum

	ID-Nr.
Kit JFDV 30 KTZ for SIMDOS® 02 KT	166286
Kit JFDV 30 TTZ for SIMDOS® 02 TT	166287
Kit JFDV 30 FTZ for SIMDOS® 02 FT	166288



Filter for protection against influent particulates and fibers

Type	Porosity	Material	Connector	ID-Nr.
FS 60 T	70 µm	PVDF	UNF 1/4"-28	165210
FS 60 X	35 µm	PEEK	UNF 1/4"-28	165212

Access a filter chemical resistance chart at www.knfusa.com/filter-chem-resist.



Tubing and connectors

	ID-Nr.
Replacement FEP inlet/outlet tubing , 1/8" OD x 1/16" ID x 1m with UNF 1/4"-28 connector	166329
Also available in 2m length	166330
Replacement UNF 1/4"-28 connector set for 1/8" OD tubing (includes 2 ferrules and 2 fittings)	069790
Optional FEP outlet tubing for fine dosing, 1/16" OD x 1/32" ID x 1m with UNF 1/4"-28 connector†	166335

† 5 mL/min maximum flow rate with this tubing.



Mounting plate

	ID-Nr.
For wall mounting	160473



Standfitting

	ID-Nr.
For retort stand	160474



USB-serial converter for SIMDOS RC Plus

	ID-Nr.
	166949



Footswitch

	ID-Nr.
For impulse start and stop	155872



SIMDOS[®] 10

Dosing pump for liquids



- Simple and intuitive operation
- Easy calibration
- Cycle mode
- Adaptable to fluid characteristics
- Self priming, can run dry
- Various control options
- Splashproof IP65, small footprint

Fields of application

- Chemistry
- Synthetic organic chemistry
- Pharmacy
- Adhesives and glue
- Polymers & polymer coating
- Food technology research
- Detergents

Hydraulic data

Flow rate	Dosing volume	Suction height	Max pressure
1 - 100 mL/min	1 - 999 mL	9.8 ft. water	85 psig

Pump type

Code	Pump head	Diaphragm	Valves	Filter (1pc. included)	Tubing (2pc. included)
KT	PP	PTFE covered	FFKM Kalrez [®]	165213	160269
TT	PVDF	PTFE covered	FFKM Kalrez [®]	165211	160269
FT	PTFE	PTFE covered	FFKM Kalrez [®] *	165213	160271
ST	STAINLESS STEEL	PTFE covered	FFKM Kalrez [®]	165213	160271

* On request FFKM Chemraz[®]

Control type

S - Version	RC - Version	RCP - Version
<ul style="list-style-type: none">• Manual operation	<ul style="list-style-type: none">• Manual operation• Analog control: 0-5 V, 0-10 V, 0-20 mA, 4-20 mA, from 1 to 100%• Start/Stop through logic control (TTL)	<ul style="list-style-type: none">• Same as RC• RS 232 port for PC control• RS 232 cable with D-Sub 9 connector included

Technical data

- Main supply 100 - 240 V / 50 - 60 Hz
- Allowed ambient temperature +5 to +40° C
- Allowed liquid temperature +5 to +80° C
- Viscosity settings up to 500 cSt**
- Accuracy +/-2% (nominal value)
- Repeatability +/-1%
- Power consumption 24 W
- Protection class IP65
- Dimensions: 150 x 93 x 144 mm
- Weight: 0.9 kg
- Supplied with 1/4" OD x 1/8" ID x 2 M tubing and compression fittings
- Filter

** Reduced flow rate above 150 cSt

Model Numbers: UFEM 1.10___.18 *Example: UFEM 1.10TT.18RC*
Code: KT, TT, FT, or ST
Control: S, or RC

SIMDOS® 10

Accessories

Valves kit

	ID-Nr.
Chemraz® special valves for certain chemicals	168037



Special Valves CHEMRAZ®

Diaphragm pressure control valve with support when the feeding tank is above the pump or to dose into vacuum

	ID-Nr.
Kit FDV 30 KTZ for SIMDOS 10 KT	167598
Kit FDV 30 TTZ for SIMDOS 10 TT	167599
Kit FDV 30 FTZ for SIMDOS 10 FT, ST	167600



Filter

Type	Porosity	Material	Connector	For	ID-Nr.
FS 25 T	70 µm	PVDF	for 1/4" OD x 1/8" ID tubing	TT	165211
FS 25 X	35 µm	PEEK	for 1/4" OD x 1/8" ID tubing	FT, KT, ST	165213

Access a filter chemical resistance chart at www.knfusa.com/filter-chem-resist.



Pulsation damper placed on pump outlet for smoother flow

	ID-Nr.
FPD 10 KT for SIMDOS 10 KT	167821
FPD 10 TT for SIMDOS 10 TT	167822
FPD 10 FT for SIMDOS 10 FT, ST	167823



Mounting plate

	ID-Nr.
for wall mounting	160473



Standfitting

	ID-Nr.
for retort stand	160474



Footswitch

	ID-Nr.
for impulse start and stop	155872



LIQUIPORT® 100, 1.100, 300, 1.300

Transfer pump for liquids



- ▷ Simple and intuitive operation
- ▷ Self priming, can run dry
- ▷ Analog and impulse control (RC)
- ▷ Splashproof IP65, small footprint

Fields of application

- Chemistry
- Synthetic organic chemistry
- Pharmacy
- Adhesives and glue
- Polymers & polymer coating
- Food technology research
- Detergents

Hydraulic data

Type	Flow rate	Suction height	Max. pressure
LIQUIPORT 100	0.2–1.3 L/min	9.8 ft. water	15 psig
LIQUIPORT 1.100	0.2–1.3 L/min	9.8 ft. water	85 psig
LIQUIPORT 300	0.5–3.0 L/min	9.8 ft. water	15 psig
LIQUIPORT 1.300	0.5–3.0 L/min	9.8 ft. water	85 psig

Pump type

Code	Pump head	Diaphragm	Valves
KT	PP	PTFE covered	FFKM Simriz®*
TT	PVDF	PTFE covered	FFKM Simriz®*
FT	PTFE	PTFE covered	FFKM Simriz®*

* Optional materials available on request

Functions

S - Version	RC - Version
<ul style="list-style-type: none"> • Manual operation 	<ul style="list-style-type: none"> • Manual operation • Analog control: 0–10V for 0 to 100% (others on request) • Start/Stop through logic control (TTL) • Output signal fault alarm • RC cable for external control included

Technical data

- Main supply 100–240 V / 50–60 Hz
- Ambient temperature allowed +5 to +40 °C
- Liquid temperature allowed +5 to +80 °C
- Maximum viscosity allowed 150 cSt
- Power consumption 12–16W (100, 1.100); 22 - 32 W (300, 1.300)
- Protection class IP65
- Dimensions:
 - 130 x 99 x 177 mm (100, 1.100)
 - 160 x 104 x 188 mm (300, 1.300)
- Weight: 1.0 kg (100, 1.100); 1.5 kg (300, 1.300)
- Equipped with barbed fittings:
 - for 5/16" ID tubing (100, 1.100)
 - for 15/32" ID tubing (300, 1.300)

Model Numbers: NF .18 Example: NF 1.300FT.18S

Type: 100, 1.100, 300, 1.300

Code: KT, TT, or FT

Control: S, or RC

LIQUIPORT® 100, 1.100, 300, 1.300

Accessories

Mounting plate

	ID-Nr.
for wall mounting	160473



Standfitting

	ID-Nr.
for retort stand	160474



Footswitch

	ID-Nr.
for impulse start and stop	155872



CHEMICAL RESISTANCE

of KNF liquid pumps

The chemical resistance chart below includes common liquid lab media. For the complete chart, go to www.knfusa.com/chem-resist.

Media	Formula	Head Materials				Valve Material
		PP (KT)	PVDF (TT)	PTFE (FT)	SS (ST)	FFKM
Acetic acid, 65%	CH ₃ COOH	A	A	A	B	A
Acetic acid, 100%	CH ₃ COOH	A	A	A	C	A
Acetone	CH ₃ COCH ₃	A	C	A	B	A
Ammonia	NH ₃	A	A	A	A	A
Butanol	C ₄ H ₉ OH	A	A	A	A	A
Butylacetate	CH ₃ COOC ₄ H ₉	B	A	A	–	A
Chloroacetic acid	C ₂ H ₃ ClO ₂	A	A	A	C	A
Chlorobenzene	C ₆ H ₅ Cl	B	A	A	–	A
Chloroform	CHCl ₃	B	A	A	B	B
Cyclohexane	C ₆ H ₁₂	B	A	A	–	A
Dichloroethylene	C ₂ H ₂ Cl ₂	B	A	A	C	A
Dichloroacetic acid	C ₂ H ₂ Cl ₂ O ₂	A	–	A	–	A
Dichloromethane	CH ₂ Cl ₂	C	A	A	–	A
Diethylether	(C ₂ H ₅) ₂ O	B	A	A	–	A
Dimethyl formamide (DMF)	(CH ₃) ₂ NOCH	A	C	A	–	A
Dioxane		C	B	A	–	A
Ethanol	C ₂ H ₅ OH	A	A	A	A	A
Ethylacetate	C ₄ H ₈ O ₂	A	C	A	B	A
Heptane	C ₇ H ₁₆	B	A	A	A	A
Hexane	C ₆ H ₁₄	A	A	A	–	A
Isobutyl alcohol	(CH ₃)CHCH ₂ OH	A	A	A	–	A
Isopropyl alcohol	(CH ₃) ₂ CHOH	A	A	A	–	A
Methyl alcohol	CH ₃ OH	A	A	A	A	A
Methyl chloride	CH ₃ Cl	C	A	A	C	A
Methylethylketone (MEK)	C ₄ H ₈ O	A	C	A	B	A
Nitric acid 10%	HNO ₃	A	C	A	C	A
Nitric acid 65%	HNO ₃	C	C	A	C	A
Phenol (Carbolic acid)	C ₆ H ₅ OH	A	A	A	B	A
Propyl alcohol	C ₃ H ₇ OH	A	A	A	–	A
Pyridine	C ₅ H ₅ N	B	A	A	B	A
Sodium hypochlorite	NaOCl	B	B	A	C	A
Sulfuric acid 60%	H ₂ SO ₄	A	A	A	C	A
Sulfuric acid 95%	H ₂ SO ₄	B	A	A	C	A
Tetrachloroethane	C ₂ H ₂ Cl ₄	B	A	A	–	A
Tetrachloroethylene	Cl ₂ CCl ₂	B	A	A	–	A
Tetrachloromethane	CCl ₄	C	A	A	B	A
Toluene	C ₆ H ₅ CH ₃	B	A	A	A	A
Trichloroethane	Cl ₃ CCH ₃	B	A	A	C	A
Trichloroethylene	C ₂ HCl ₃	B	A	A	C	B

Rating system: A resistant B limited resistance C not resistant – No data available

CHEMICAL RESISTANCE

The chart on the opposite page rates the effect of chemicals on pump wetted-path materials and is to be used only as a general guide. KNF assumes no responsibility for the use of this information in specific applications. All data refers to information from manufacturers of these materials and is only valid under room temperature and concentration (when stated). Variations in temperature, concentration, mixture of chemicals, etc. may effect the chemical resistance of these materials. In order to be certain that materials are resistant with the liquids being pumped and at the specific use conditions, we recommend soak tests.

Experience shows that FFKM Chemraz® valves should be used with the following liquid media:

Media	Formula
Cyclohexane	$C_6H_{12}O$
Dimethyl formamide (DMF)	C_3H_7NO
Dimethyl sulfoxide (DMSO)	C_2H_6OS
Hydrofluoric acid (>75%)	HF
Methyl ethyl ketone (MEK)	C_4H_8O
Nitric acid (>75%)	HNO_3
N-Methyl-2-Pyrrolidone	C_5H_9NO
Sulphuric acid (>75%)	H_2SO_4
Sulphuryl dichloride (>75%)	SO_2Cl_2
Tetrahydrofuran (THF)	C_4H_8O
Trifluoroacetic acid (>75%)	$C_2HF_3O_2$

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