

DEPA[®]

brands you trust.



Technical Datasheet
DEPA[®] DL-SF/SFS
Air Operated Double Diaphragm Pumps

CRANE

Crane ChemPharma & Energy

www.depapumps.com
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Features and Benefits

The DL-SFS and DL-SF pumps are made of electropolished cast stainless steel with a surface finish of up to $R_a^* 3,2 \mu\text{m}$ and FDA (Food & Drug Administration) approved elastomers. The pumps distinguish themselves through their versatile application range and rugged construction.

* R_a = roughness average

Key Features

- 1 Polished Cast Stainless Steel surface provides easy cleaning
- 2 Tri-Clamp® industry standard connections suitable for food and pharmaceutical applications
- 3 Rugged Design with FDA approved diaphragms, valve balls and valve seats



Sizes

Type	15 (½")	25 (1")	40 (1 ½")	50 (2")	80 (3")
DL-SF - Cast Stainless Steel 316L	-	●	●	●	●
DL-SFS - Cast Stainless Steel 316L	●	●	●	●	●

Size (mm)	15*	25	40	50	80
Dry suction height (mWs)	3,5	5,5	5,8	5,8	6
Max. solid size (mm)	3,5	4	6	8	10
Weight (kg)	10,5	14	24	51	83

*not SF

Applications

The electropolished cast stainless steel housing material with austenitic steel, provides for a high level of chemical and corrosion resistance. Suitable for food processing with reduced hygienic process requirements. For instance in:

- Beverage & Food
- Chemical
- Cosmetics
- Pharmaceutical

Features and Benefits

Temperature

Temperature Range: -25°C to +130°C

Product wetted interior	Max. Temperature (°C)
NBR	-15 to +90
EPDM	-25 to +90
EPDM grey	-25 to +90
NRS	-15 to +70
FKM	-5 to +120
DEPA nopped S ⁴ ®	-20 to +110
PTFE	-5 to +130
DEPA nopped E ⁴ ®	-10 to +130

Marking and Identification

The pumps are provided with a nameplate containing the pump code, serial number, date of manufacture, and maximum allowed temperature and pressure.

The DEPA® pump code provides all relevant information about the pump, performance, materials and accessories. This allows for accurate linkage to spare parts.

Applied Guidelines

- ATEX compliant in accordance with directive 94/9/ EC equipment group II, category 2GD, Explosion group IIB Tx (II 2 GD IIB Tx)
- Machinery Directive 2006/42/EC
- Eurasian Conformity



ATEX-compliant
II 2GD IIB Tx



Materials

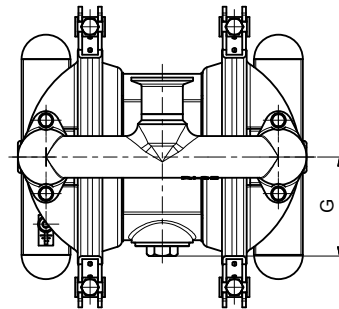
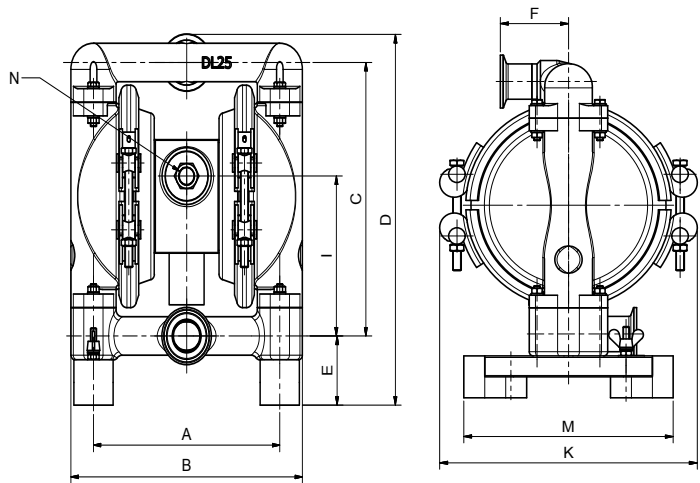
	DL-SFS	DL-SF
Housing Material	1.4404/316L electropolished	1.4404/316L electropolished
Design (of wetted parts)	Cast stainless steel	Cast stainless steel
Surface (of wetted parts)	Electropolished	Electropolished
Quality (for wetted parts)	$R_a^{1)} \leq 3,2 \mu\text{m}$	$R_a^{1)} \leq 3,2 \mu\text{m}$
Center block	1.4301/304	3.2383 nickel plated and polished
Air chamber	1.4404/316L polished	1.4301/ 304
Outer piston cap	1.4404/ 316L $R_a^{1)} \leq 3,2 \mu\text{m}$ polished	1.4404/316L $R_a^{1)} \leq 3,2 \mu\text{m}$ polished
Diaphragm fixure	Clamp band 1.4301 polished	Clamp band 1.4301 polished
S-/D manifold	1-piece	1-piece
Standard connections	Tri-Clamp® ISO	Tri-Clamp® ISO
Base frame	Fixed	Fixed

¹⁾ R_a = roughness average

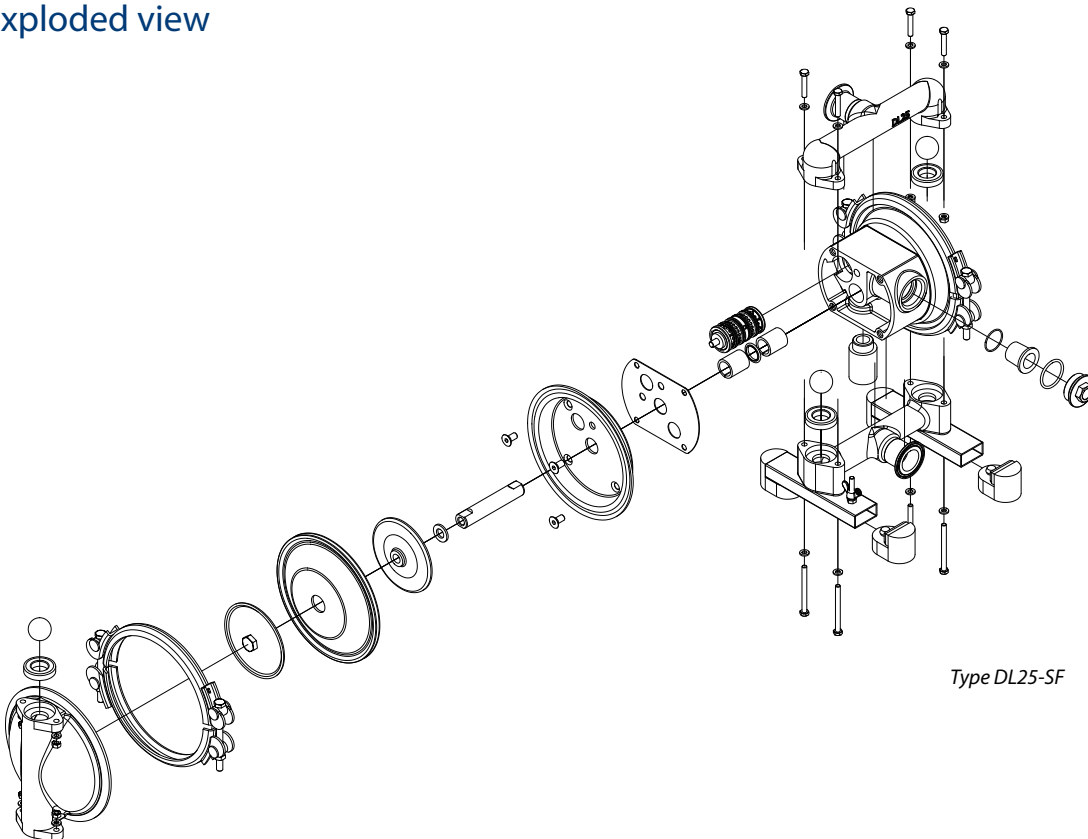
Dimensions

Dimensions (mm)	Size				
	DL15*	DL25	DL40	DL50	DL80
A	156	190	220	280	350
B	190	236	311	413	511
C	180	241	305	414	522
D	229	327	410	540	680
E	32	61	72	88	105
F	48	65	85	100	108
G	55	81	81	103	103
I	90	141	178	245	304
K	174	246	285	353	437
M	131	200	255	340	420
N (air inlet)	G 1/4	G 3/8	G 3/8	G 3/4	G 3/4

*not SF



Exploded view



Type DL25-SF

Pump Sizes and Equipment

DL	25	-	S	F	S	G	G	G	-	-	-	U
DL	25	-	S	F	-	G	G	G	-	-	-	U

Connecting dimension DN (mm) / inch
15 / 1/2**
25 / 1"
40 / 1 1/2"
50 / 2"
80 / 3"

*not SF

FDA approved material options			
Material	Diaphragm	Valve Seat	Valve Ball
EPDM grey	G	G	G ¹⁾
EPDM grey with core	-	-	X ¹⁾
DEPA Nopped E4®	Z	-	-
PTFE	T	T	T
PTFE with core	-	-	Z ¹⁾
Stainless Steel	-	R	R

¹⁾ Not for size 15

Other combinations are available upon request

	Material
SFS	Centerblock in stainless steel (1.4301/304)
SF-	Centerblock in cast aluminium (3.2383 nickel plated and polished)

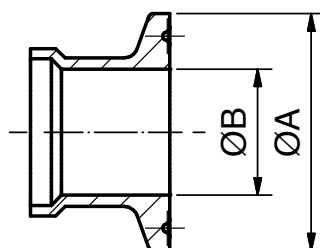
	Connections
--- U	Tri-Clamp® acc. to DIN
--- Z	Tri-Clamp® acc. to ASME-PBE
--- D	DIN 11851
	Standard Tri-Clamp® ISO

Tri-Clamp® dimensions

Connecting dimensions of Tri-Clamp®	15*		25			40			50		80
	ISO pipe	DIN pipe	ISO pipe	DIN pipe	Inch pipe	ISO pipe	DIN pipe	Inch pipe	ISO pipe	DIN pipe	ISO pipe
ØA	34	34	50,5	50,5	50,5	64	50,5	50,5	77,5	64	106
ØB	18,1	16	29,7	26	22,9	44,3	38	35,1	56,3	50	84,3

Other dimensions are available upon request

*not SF



Accessories and Automation

Active Pulsation Dampers



DEPA® Air-Operated Double Diaphragm Pumps can be equipped with an active pulsation damper mounted on the discharge manifold. This minimises any remaining pulsations.

Active pulsation dampers are particularly suitable for intermittent operating conditions and, due to their integrated control, they automatically adjust to provide an optimal degree of damping. A separate air supply is required.

As with the air-operated double diaphragm pumps, a principle guiding the development of pulsation dampers is the modular use of common components.

Pulsation dampers require minimum maintenance and are, subject to the requirements of the application, available in the same housing and diaphragm materials as the pump.

Passive Pulsation Dampers



As an alternative to the active pulsation damper, DEPA® Air-Operated Double Diaphragm Pumps can also be supplied with a passive pulsation damper mounted on the discharge pipe. This type is particularly suitable for uninterrupted operating conditions.

Passive pulsation dampers are available in several housing materials - painted steel, polypropylene, or stainless steel - and, depending on the design, can be fitted with an internal diaphragm. An appropriate pulsation damper can be selected based on pump size to minimise pulsations.

Diaphragm leakage monitoring system



In case of diaphragm failure occurs, the pumped fluid enters the air chamber and triggers the sensor. The sensor sends subsequently an electrical output to the monitoring device for evaluation of the signal. The control unit switches off the air supply to the air valve, and thus halting the operation of the pump.

Two sensors per pump (one per chamber) are installed.

Two types of sensors are available:

- Conductivity Measurement, Standard (orange) for conductive products
- Capacity System, ATEX (blue) for non-conductive products and approved for ATEX-certified pumps.

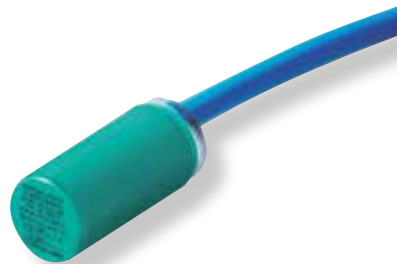
Accessories and Automation

Slow Start Up Valve



For pumps that have not been primed for operation, the unthrottled opening of the compressed air supply can create severe loads on housing materials and diaphragms, resulting in a unwanted wear. These pressure shocks can be mitigated by increasing operating pressure in a slow and gradual manner. To automate this process, we have produced our Slow Start-Up Air Valve that can be used with all DEPA® pumps.

Stroke Counter



The stroke counter sensor counts each cycle of the diaphragm movement. Multiplying the number of cycles with the pump chamber volumes, the discharge flow rate can be determined. For dosing applications, the stroke counter provides for precise measurement and accurate regulation.

The stroke counter sensor is located within the center block and provides an electrical output each time the diaphragm is in the end position.

The stroke counter consists of a sensor and an electronic amplifier/ regulator. the sensor can be used in ATEX certified pumps.

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