Alfa Laval SolidC UltraPure

Centrifugal pumps

Introduction

The Alfa Laval SolidC UltraPure Centrifugal Pump is designed for basic transport of fluids in high-purity applications where contamination safety is of paramount importance. With its hygienic design, cost-effective operation and quick, easy maintenance, the SolidC UltraPure offers excellent value for money.

Applications

The Alfa Laval SolidC UltraPure pump is designed to meet the stringent demands and regulations of high-purity applications across the biotechnology and pharmaceutical industries, which require equipment with the highest material integrity.

All pumps are delivered with a complete Alfa Laval Q-doc package for easier validation and provide proof of origin and compliance for inspection purposes according to Good Manufacturing Practice (GMP) and ASME BPE requirements.

The SolidC UltraPure pump is available in four sizes to handle capacities up to 75 m^3/h and differential pressures up to 8 bar at 50Hz.

Benefits

- Low contamination risk: comes with full material traceability and USP Class VI elastomers to reduce the risk of process contamination from extractables.
- Cost-effective operation: consistent performance ensured.
- Quick and easy maintenance: wear parts changed in just a few minutes.
- Smooth qualification, validation and process control: material traceability, and pump supplied with Alfa Laval's Q-Doc package in line with Good Documentation Practices (GDP).

Standard design

All media contacting steel components like pump casing, impeller, impeller nut and backplate are in W. 1.4404 (AISI 316L) with material traceability 3.1 according to EN 10204. Product wetted elastomers are specified to USP Class VI, 121°C Chapter 88, and Chapter 87. A stainless steel shroud protects the motor and four adjustable stainless steel legs support the complete unit.

The semi-open impeller with a special vane design and balance holes enhance circulation around the shaft seal and reduce axial forces. This maximizes cleanability while minimizing wear on the shaft seal and motor bearings.

As standard the SolidC UltraPure pump is equipped with a single mechanical shaft seal, but also is available with a single flushed mechanical shaft seal. The secondary seal of the flushed seal is a long-lasting lip seal. The front-loading shaft seal, with the spring and washers mounted on the atmospheric side, makes maintenance fast, easy and inexpensive. It takes just a few minutes to replace the shaft seal. In addition, the balanced design minimizes the risk of seal opening during unforeseen pressure shock.

TECHNICAL DATA

Materials	
Product wetted steel parts:	W. 1.4404 (316L) with material traceability 3.1 according to EN 10204
Other steel parts:	Stainless steel
Inside surface finish:	Mech Ra ≤ 0.5
External finish:	Fiber brushed
Product wetted elastomers:	EPDM - USP Class VI, 121°C. Chapter 88, and Chapter 87
Rotary seal face:	Silicon Carbide
Stationary seal face:	Silicon Carbide

Motor
Foot-flanged motor according to the IEC metric standard, 2 poles = 3000/3600 rpm at 50/60 Hz, 4 poles = 1500/1800 rpm at 50/60 Hz, IP 55 (with drain hole with labyrinth plug), insulation class F.

Motor sizes	
50Hz:	1.5 - 22 kW
60Hz:	1.5 - 22 kW

Min/max motor speed	
2 poles:	900 - 4000 rpm
4 poles:	900 - 2200 rpm

Warranty
Extended 3-years warranty on SolidC UltraPure pumps. The warranty covers all non wear parts on the condition that genuine Alfa Laval Spare Parts are used.

OPERATING DATA

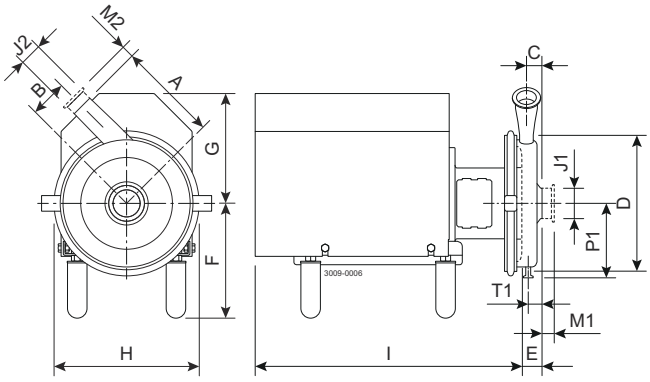
Max inlet pressure	
SolidC UltraPure 1 - 4:	400kPa (4 bar)

Temperature	
Temperature range:	-10°C to +120°C (EPDM)
Flush media:	Max 70°C

Flushed shaft seal	
Water pressure inlet:	Max. 1 bar
Water consumption:	0.25 - 0.5 l/min

Connections for flushed shaft seal	
SolidC UltraPure 1 - 4:	1/8" G

Dimensions (mm)



Pump specific measures

Pump Model	SolidC-1 UltraPure	SolidC-2 UltraPure	SolidC-3 UltraPure	SolidC-4 UltraPure
A	180	200	210	230
B	67	94	121	120
C	28	35	31	27
D	238	227	311	333

Pump Model	SolidC-1 UltraPure	SolidC-2 UltraPure	SolidC-3 UltraPure	SolidC-4 UltraPure
E	40	47	44	44
P1	130	150	164	175
T1	21	27	23	21

Motor specific measures

Motor IEC	IEC90	IEC100	IEC112	IEC132	IEC160
Motor kW	**1.5/2.2**	**3.0**	**4.0**	**5.5/7.5**	**11/15/18.5/22**
F(max) [1]	246	256	259	279	307
G	126	137	136	164	208
H	227	278	277	327	377
I	405	469	468	543	651

[1] Possible to reduce dimension F by min. 15 mm for all pump models. For smaller models it will be possible to reduce dimension F even further.

Motor overview

Pump Model	SolidC-1 UltraPure	SolidC-2 UltraPure	SolidC-3 UltraPure	SolidC-4 UltraPure
Motor range (IEC)	IEC90-IEC112	IEC100-IEC160	IEC132-IEC160	IEC132-IEC160

Note! Dimensional data are based on 2 pole, WEG motors.

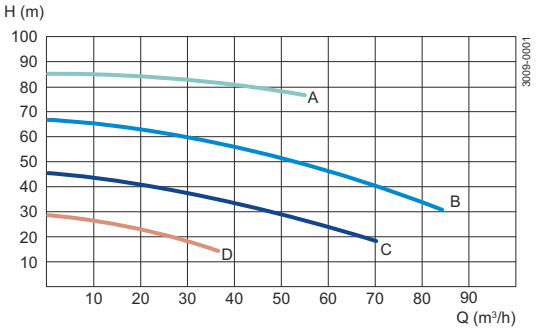
Connections

Pump Model		SolidC-1 UltraPure	SolidC-2 UltraPure	SolidC-3 UltraPure	SolidC-4 UltraPure
Clamp ISO 2037	M1	21	21	21	21
	M2	21	21	21	21
Clamp ASME BPE	M1	13	13	13	29
	M2	13	13	13	13
Clamp for ISO-1127	M1	36	36	48	48
	M2	36	36	36	36
Clamp DIN 32676	M1	21	64	64	64
	M2	21	21	21	21
J1[1]		51 / 2"	63.5 / 2.5"	76.1 / 3"	76.1 / 3"
J2[1]		38 / 1.5"	38 / 1.5"	38 / 1,5"	51 / 2"

[1] Other dimensions available on request. ESE00678/1

	TC Clamp	ISO 2037 Clamp
1/2"	12.7	12.7

Flow chart



A = SolidC-4 UltraPure
B = SolidC-3 UltraPure
C = SolidC-2 UltraPure
D = SolidC-1 UltraPure

Figure 1. Frequency: 50 Hz. Speed /synchr.): 3000 rpm

Q-doc

Standard documentation package:

- Declaration of compliance with Regulation (EC) No.: 1935/2004
- Declaration of compliance to EN 10204 type 3.1 (MTR)
- Declaration of compliance to the U.S. Food & Drug Administration CFR 21 (non-metallic parts)
- Declaration of compliance to the U.S. Pharmacopeia (Elastomers and polymers) - EPDM only

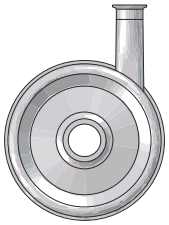
- TSE (Transmissible Spongiform Encephalopathy) / ADI (Animal Derivative Ingredient) Declaration
- Declaration of surface finish compliance
- Declaration of passivation and electro polishing (if specified)
- 3.1 certification in accordance to EN10204
- Pump performance test certificate

Optional documentation:
- Hydrostatic test certificate
- Surface measurement report

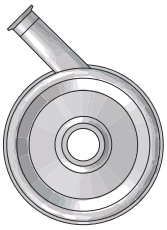
Options

- Impeller with reduced diameter.
- Motor for other voltage and/or frequency.
- Half speed motor.
- Flushed shaft seal.
- Horizontal drain connection.
- No drain.
- Product wetted surface finish mechanically polished to Ra ≤ 0.8 µm.
- Product wetted surface finish electropolished to Ra ≤ 0.4 µm.
- Product wetted elastomers FPM or FEP.
- Hydrostatic testing with certificate.
- Surface finish measurement with certificate.
- 0°, 90° or 270° outlet, see illustration below.

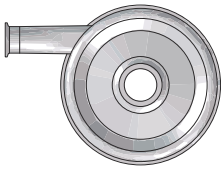
Available outlet positions



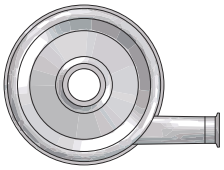
0°



45°

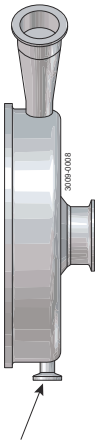


90°



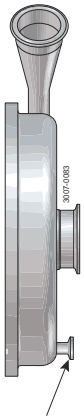
270°

Available drain connections



Availble connections:
- Tri-clamp for ASME
- Clamp for ISO 1127

1/2" vertical drain



Availble connections:
- Tri-clamp for ASME
- Clamp for ISO 1127

1/2" horizontal drain

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