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Alfa Laval Twin screw

Positive displacement pumps

Introduction

The Alfa Laval Twin Screw Pump combines process duties typically handled by positive displacement with Cleaning-in-Place (CIP) duties typically handled by centrifugal pumps. This provides a robust and reliable platform that offers greater process flexibility.

Designed for process flexibility, the Alfa Laval Twin Screw Pump is built on a robust, reliable platform that meets stringent hygienic standards. It is capable of handling both product transfer and CIP. Its low pulsation characteristics and excellent solids-handling capability reduce the risk of product damage, thereby improving product quality.

The pump is designed according to the most stringent hygienic design standards and with verified, effective CIP.

Applications

Designed for handling sensitive, abrasive and high and low viscosity fluids, the Alfa Laval Twin Screw Pump is ideal for use in hygienic applications across the dairy, food, beverage, and home and personal care industries. Quiet and virtually pulse-free, the pump provides smooth and gentle operation, making it an excellent choice for handling sensitive products.

Two-in-one operation provides easy handling of process media of varying viscosities as well as CIP fluids. This simplifies piping and pump control, cutting costs and minimizing contamination risks.

Superior suction performance with excellent lift capability and low NPSHr provides installation flexibility and increases product recovery.

The Alfa Laval Twin Screw Pump is available in twelve models based on four frame sizes. Each frame size is available with three different screw profiles for varying pressure, flow and solids-handling capabilities.

Benefits

- Greater process flexibility.
- Ease of service, increased process uptime.
- Robust reliable design, reducing cost of ownership and increasing process uptime.
- Improved product quality.
- Exceptional hygiene and cleanability.

Standard design

All media contacting steel components, like pump casing, front cover and feed screws are in W. 1.4404 (AISI 316L). Furthermore, the pump casing is diffusion hardened. A stainless steel gearbox, end cover and foot ensure increased life and assist in washdown.

The gearbox is designed with the timing gears located between the bearing sets, rather than external to them. This allows the bearing location to be optimized in order to provide maximum support to the shaft assembly, thereby providing a robust rigid design. The internal gearcase design optimizes oil circulation to both sets of bearings and the timing gears with an oil sump design. This improves the lubrication effect on both bearings and timing gears, minimizing the energy produced due to friction and thereby reducing heat generation within the pump gearbox.



The front-loading, self-setting cartridge design makes it easy to replace the shaft seal while the pump is in place. Single, single flush and double mechanical cartridge seals are available. All options are fully front-loading and interchangeable.

The Alfa Laval Twin Screw Pump can be supplied either as a bare shaft pump or mounted on a base plate complete with coupling, guard, shroud and a direct coupled motor or a gear motor for easy, plug-and-play installation.

Working principle

The Alfa Laval Twin Screw Pump is a positive displacement pump. As the pump rotates, the intermeshing of the two contra-rotating screws, along with the pump casing, form volumetric chambers. These chambers fill with the pumped fluid and move the fluid axially from the suction side of the pump to the higher pressure discharge side.

TECHNICAL DATA

Standard specification	
Pump casing:	W. 1.4404 (316L), diffusion hardened
Screws, front cover, seal housing:	W. 1.4404 (316L)
Inside surface finish:	Mech Ra ≤ 0.8
Gear box:	Stainless steel
Base plate:	Stainless steel
Coupling guard:	Stainless steel
Product wetted elastomers:	EPDM
Other elastomers:	FPM
Shaft seal:	Single flush
Rotary seal face:	Silicon Carbide
Stationary seal face:	Silicon Carbide

Shaft seals	
Single, Single flush and double mechanical cartridge seals available. All options are fully front loading and interchangeable.	
Max flush pressure, single flush:	0.5 bar
Max flush pressure, double mechanical:	16 bar (max 6 bar over product pressure)
Water consumption, single flush and double mechanical:	0.5 l/min
Flush connections, OS12-36:	G 1/4" or NPT 1/4"
Flush connections, OS42-46:	G 1/2" or NPT 1/2"

Pressure	
Max inlet pressure:	16 bar
Max discharge pressure:	16 bar

Temperature	
Max process temperature:	100°C
Max CIP/SIP temperature:	150°C

Motor	
Direct coupled motor, 4, 6 or 8 poles, or gear motor, 4 poles, to IEC metric standard, 50/60 Hz, suitable for frequency conversion, IP55, insulation class F.	

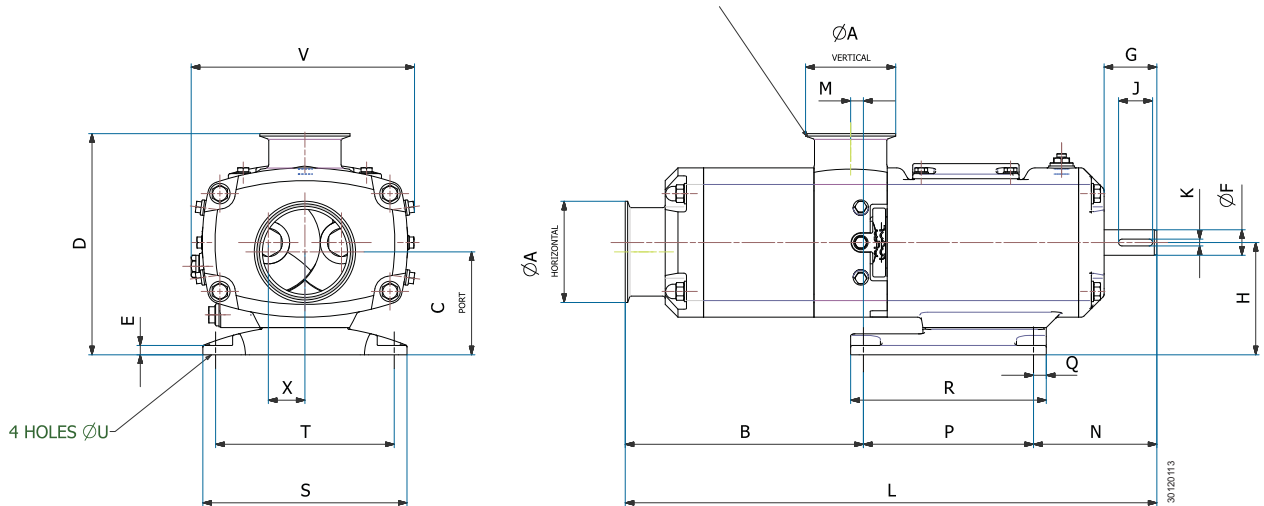
Warranty	
Extended 3-years warranty on Alfa Laval Twin Screw pumps. The warranty covers all non wear parts on the condition that genuine Alfa Laval Spare Parts are used.	

Operating data

Model	Max Flow m ³ /h	Max Differential Pressure bar	Max speed		Max Particle Size mm
			Process rpm	CIP rpm	
OS12	6.1	16	2800	3300	6
OS14	10.4	12	2800	3300	11
OS16	16.0	8	2800	3300	17
OS22	18.2	16	2500	3300	12
OS24	24.3	12	2500	3300	16
OS26	36.5	8	2500	3300	24
OS32	34.8	16	2200	3000	16
OS34	46.6	12	2200	3000	21
OS36	69.9	8	2200	3000	32
OS42	66.8	16	1800	2800	21
OS44	89.5	12	1800	2800	29
OS46	134.3	8	1800	2800	43

Dimension

PUMP SHOWN WITH TRI-CLAMP, SUCTION AND DISCHARGE CONNECTIONS



Model	ØA Vertical mm	Inch	B mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	Q mm	R mm	S mm	T mm	U mm	V* mm	X mm	
OS12	25	1																				
OS14	40	1½	170	180	7	18	50	90	40	6	405	10	110	125	10	145	155	135	9	188,5	28	
OS16	50	2																				
OS22	40	1½																				
OS24	50	2	222,5	220	9	20	54,5	112	40	6	505	12,5	117,5	165	12,5	190	200	175	11	216	33	
OS26	65	2½																				
OS32	65	2½																				
OS34	65	2½	280	260	11	30	62	132	40	8	625	15	145	200	15	230	240	210	13	262,5	43	
OS36	80	3																				
OS42	80	3																				
OS44	80	3	360	350	15	45	87	180	70	14	790	20	180	250	20	290	320	280	17,5	346	58	
OS46	100	4																				

* Dimension 'V' is with flush plugs installed - NPT adaptors will increase this dimension by ~10mm

Model	ØA Horizontal		C			
			DIN11851 DIN 11864-2-A-A	DIN 11864-1-A-A	SMS	Tri-Clamp DIN 11864-1-A-C DIN 11864-2-A-C
	mm	Inch	mm	mm	mm	mm
OS12	40	1.5	72	70.75	70.4	70.45
OS14	50	2	78	77.25	76.75	76.8
OS16	65	2.5	86	83.15	83.1	83.15
OS22	50	2	90	89.3	88.75	88.8
OS24	65	2.5	98	95.15	95.10	95.15
OS26	80	3	105.5	101.45	101.45	101.5
OS32	80	3	111.5	107.45	107.45	107.5
OS34	80	3	111.5	107.45	107.45	107.5
OS36	100	4	121	119.8	119.7	119.8
OS42	100	4	148.5	147.3	147.2	147.3
OS44	100	4	148.5	147.3	147.2	147.3
OS46	150	6	173.5	-	171.93	-

Options

- A. Single mechanical shaft seal.
- B. Double mechanical shaft seal.
- C. Silicon Carbide/Carbon seal faces
- D. Product wetted elastomers in FPM or FFPM.
- E. Diffusion hardened screws.
- F. Heating jacket.
- G. Rectangular inlet.
- H. Hydrostatic testing with certificate.
- I. Reversed flow.
- J. Bottom inlet or outlet.
- K. Stainless steel shroud covering coupling and motor.
- L. Baseplate fitted with adjustable stainless steel ball feet.
- M. ATEX approval.

Pump sizing

In order to correctly size a twin screw pump some essential information is required. Provision of this information listed below enables our Technical Support personnel to obtain the optimum pump selection. Specific CIP data are important as well.

Product/Fluid Data

- Fluid to be pumped
- Viscosity
- Pumping temperature, minimum, normal and maximum
- Cleaning in Place temperature(s), minimum, normal and maximum

Performance Data

- Flow rate, minimum, normal and maximum
- Discharge head/pressure (closest to pump outlet)
- Suction condition

Note!

For further details, see also 100000817.

This product has EHEDG certificate

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