

Supplementary to the operating and installation instructions of the pump series FUTUR

Use of a pulsation damper type: D 10 T / 20 T / 50 T / 100 T D 10 H / 20 H

ought to be studied before installing the pulsation damper

Due to their design, oscillating displacement pumps deliver a pulsating flow. This pulsation is considerably reduced by the appropriately designed air distribution channels and air chambers of the FUTUR series, as well as by the cascade seal, also on the suction side. Pulsation dampers of the same design (type D) without tie rods are available for all pump sizes, if the remaining pulsation on the discharge side is unacceptable for a specific application. A separate pulsation damper can be retrofitted at any time, even on installed pumps, without changing the product connections. A general aspect to be considered is, that a pulsation damper decreases the total capacity of the system depending on the point of operation.

The ALMATEC Maschinenbau GmbH is certified as a modern, quality-orientated enterprise according to DIN EN ISO 9001:2000. Before release for dispatch, any damper of the D series has to undergo an extended final control. The data registered during this are archived in our records and can be read back at any time.

Before putting an ALMATEC pulsation damper into operation, make sure, that the materials of construction are resistant to the chemical to be pumped.

In the following text, all mentioned parts of the pulsation damper are marked with a number, which is identical with the item number, shown in the spare part list as well as the exploded view drawing.

Installation and operation

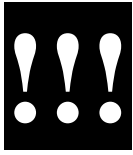
The delivery of the FUTUR pump and the D pulsation damper will be carried out in separate packaging for safety reasons. To install the pulsation damper, the front-sided discharge valve stop of the pump must be removed (see exploded view drawing on page 4).

O-ring damper housing [2] should be checked for correct seating in the groove. Unless done before, set the pump upright on its feet and ensure the correct position of the check valve within the pump. Now the damper has to be screwed into the pump carefully, but only until the damper is in contact with the pump. Exceeded tightening may damage the thread.

The connection for the air supply is located on the top of the damper head [3]. For proper function, the damper needs its own and separate air connection, starting at the air connection of the pump. Do not place any kind of stop or regulation valves between the pump and damper air supply. Pump and damper should receive the same air pressure at any time. Concerning the quality of the air, the minimum demands given with the technical-data (shown on page 2) are valid. The pulsation damper requires a minimum counter pressure of at least 1 bar for optimal function. Pump and damper must not be operated with a positive suction pressure.

Together with the pump an empty damper has to be driven slowly. The dampers are self-regulating for all changing operating conditions.

Disassembly and assembly



- Take care that the pump and the damper have been emptied, rinsed and cut off the air-supply before starting to dismantle.
- Please respect the relevant additional security advices, if the damper has been used for aggressive, dangerous or toxic liquids.

Remove damper from the FUTUR pump by unscrewing it. While doing this, keep attention to the O-ring damper housing [2]. Separate damper housing [1] and damper head [3] by unscrewing them. Take out O-ring diaphragm outer [11] carefully. Pull out diaphragm [9] incl. actuator shaft [13]. Remove gasket diaphragm [12]. Check the O-ring diaphragm inner [10] and renew if necessary (twist prevention). Take out piston rings [5] and O-rings piston ring [6]. Remove O-ring damper head [4].

The assembly of the damper is according the above description, only in reverse order. Therefore only a few remarks according the assembly will follow.

Basically it is to be considered, that all damaged or dirty sealing elements have to be renewed before re-assembly. Removed gaskets and the piston rings have to be renewed in any case. Bend the new piston ring [5] until shaped like a kidney and place it into the groove. After this, the upstanding arch is to be pressed completely into the groove with the use of a round tool. With the change of the piston rings [5], the O-rings [6] have to be renewed as well. Before putting the diaphragm [9] back in place, the O-ring diaphragm outer [11] has to be laid in the appropriate groove of the diaphragm [9].

Because the gasket diaphragm [12] needs time to settle, after the complete assembly of the pulsation damper the further working has to be rested for at least two hours. After this break tighten the housing parts and only now mount the damper on the pump.

Technical data

Damper code		D 10/20/50/100 T for Futur T				D 10/20 H for Futur H		D 20/50/100 T for Futur E		
		10	20	50	100	10	20	20	50	100
Dimensions* (mm),	length	185	201	246	303	185	201	201	246	303
	width	114	150	200	260	114	150	150	200	260
	height	245	282	354	428	245	282	282	354	428
Air connection (NPT)		1/4"				1/4"		1/4"		
Air classification acc. to ISO-DIS 8573-1:										
solids, class		2				2		2		
water, class		3				3		3		
oil, class		3				3		3		
Weight* (kg)		3,3	5,2	10,8	23,6	3,9	6,3	3,8	7,8	17,8
Max. permissible driving pressure (bar)		6				6		6		
Max. permissible temperature (°C)										
at max. 6 bar pressure		100				100		70		
at max. 5 bar pressure		110				130		70		
at max. 4 bar pressure		120				150		70		
at max. 3 bar pressure		130				180		70		
at max. 2 bar pressure		130				200		70		

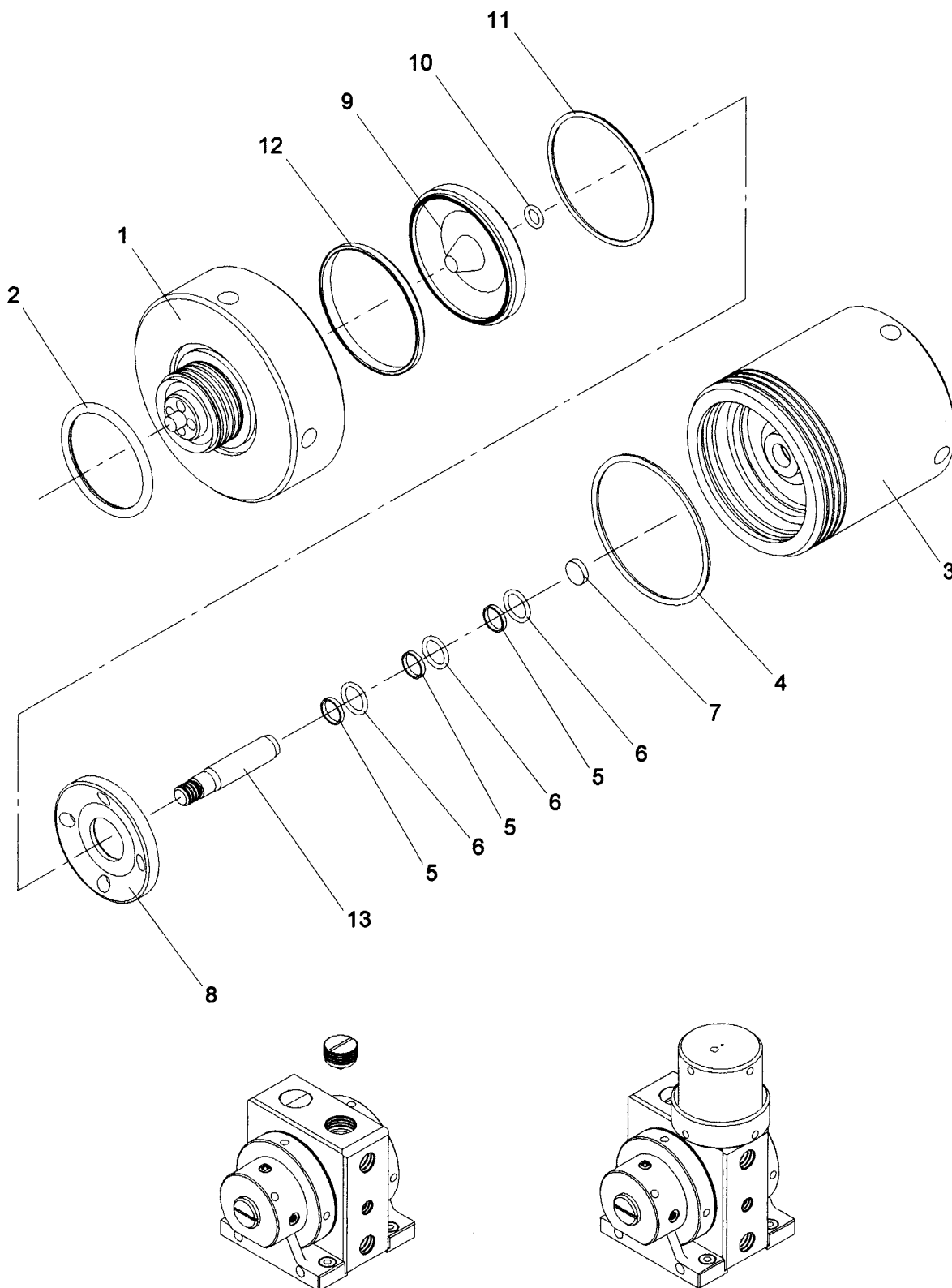
* Dimensions and weights are only valid for the complete assembly of pump incl. damper

Spare parts list

Damper size					D 10 T / H	D 20 T / H	D 50 T	D 100 T
Item	Pc.	Description	Damper-code	Material	Part-No.	Part-No.	Part-No.	Part-No.
1	1	Damper housing	T, H	PTFE-TFM	6 10 040 69	6 15 040 69	6 25 040 69	6 32 040 69
2	1	O-ring, damper housing	T, H	EPDM	9 42 540 72	9 51 513 72	9 65 516 72	9 78 530 72
3	1	Damper head	T	UPPE	6 10 041 52	6 10 041 52	6 25 041 52	6 32 041 52
		Damper head	H	PTFE cond.	6 10 041 65	6 10 041 65	-	-
4	1	O-ring, damper head	T, H	FKM	9 73 660 74	9 73 660 74	9 98 661 74	9 99 662 74
5	3	Piston ring	T, H	PTFE-PPS	1 08 153 61	1 08 153 61	1 08 153 61	8 25 431 61
6	3	O-ring, piston ring	T, H	FKM	9 13 575 74	9 13 575 74	9 13 575 74	9 18 501 74
7	1	Muffler	T, H	PE	1 08 644 51	1 08 644 51	1 08 644 51	8 32 644 51
8	1	Supporting disc	T, H	PA	8 10 884 53	8 10 884 53	8 15 884 53	8 32 884 53
9	1	Damper diaphragm	T, H	PTFE	6 10 043 69	6 10 043 69	6 25 043 69	6 32 043 69
10	1	O-ring, diaphragm inner	T, H	FKM	9 08 541 74	9 08 541 74	9 08 541 74	9 10 544 74
11	1	O-ring, diaphragm outer	T, H	FKM	9 66 533 74	9 66 533 74	9 90 586 74	9 99 609 74
12	1	Gasket, diaphragm	T, H	PTFE	6 10 026 69	6 10 026 69	6 15 026 69	6 25 026 69
13	1	Actuator shaft	T, H	PEEK	8 15 482 86	8 15 482 86	8 15 482 86	8 32 482 86

When ordering please state the serial number of the pulsation damper!

Exploded view



Subject to change without notice, 2004/03

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