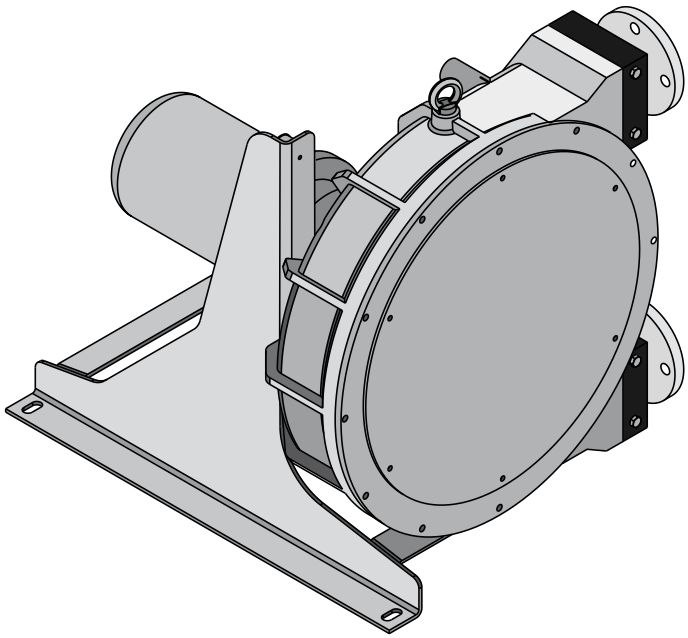
Operating instructions

DULCO®flex DFCa
Peristaltic Pump



A0374

Please carefully read these operating instructions before use! · Do not discard!
The operator shall be liable for any damage caused by installation or operating errors!
Technical changes reserved.

ProMinent Dosiertechnik Heidelberg GmbH
Im Schuhmachergewann 5 - 11
69123 Heidelberg Germany
Telephone: +49 6221 842-0
Fax: +49 6221 842-419
email: info@prominent.de
Internet: www.prominent.com

986227, 1, en_GB

Table of contents

1 Introduction

These operating instructions provide information on the technical data and functions of the DULCOMETER® BFDa series peristaltic pump.

General non-discriminatory approach

In order to make it easier to read, this document uses the male form in grammatical structures but with an implied neutral sense. It is aimed equally at both men and women. We kindly ask female readers for their understanding in this simplification of the text.

1.1 Explanation of the Safety Information

Introduction

These operating instructions provide information on the technical data and functions of the product. These operating instructions provide detailed safety information and are provided as clear step-by-step instructions.

The safety information and notes are categorised according to the following scheme. A number of different symbols are used to denote different situations. The symbols shown here serve only as examples.

DANGER!

Nature and source of the danger

Consequence: Fatal or very serious injuries.

Measure to be taken to avoid this danger.

Danger!

– Denotes an immediate threatening danger. If this is disregarded, it will result in fatal or very serious injuries.

WARNING!

Nature and source of the danger

Possible consequence: Fatal or very serious injuries.

Measure to be taken to avoid this danger.

Warning!

– Denotes a possibly hazardous situation. If this is disregarded, it could result in fatal or very serious injuries.

CAUTION!

Nature and source of the danger

Possible consequence: Slight or minor injuries. Material damage.

Measure to be taken to avoid this danger.

Caution!

– Denotes a possibly hazardous situation. If this is disregarded, it could result in slight or minor injuries. May also be used as a warning about material damage.

NOTICE!

Nature and source of the danger

Damage to the product or its surroundings.

Measure to be taken to avoid this danger.

Note!

– Denotes a possibly damaging situation. If this is disregarded, the product or an object in its vicinity could be damaged.

Type of information

Hints on use and additional information.

Source of the information. Additional measures.

Information!

– *Denotes hints on use and other useful information. It does not indicate a hazardous or damaging situation.*

1.2 Users' qualifications

WARNING!

Danger of injury with inadequately qualified personnel!

The operator of the plant / device is responsible for ensuring that the qualifications are fulfilled.

If inadequately qualified personnel work on the unit or loiter in the hazard zone of the unit, this could result in dangers that could cause serious injuries and material damage.

– All work on the unit should therefore only be conducted by qualified personnel.
– Unqualified personnel should be kept away from the hazard zone

Training	Definition
Instructed personnel	An instructed person is deemed to be a person who has been instructed and, if required, trained in the tasks assigned to him/her and possible dangers that could result from improper behaviour, as well as having been instructed in the required protective equipment and protective measures.
Trained user	A trained user is a person who fulfils the requirements made of an instructed person and who has also received additional training specific to the system from ProMinent or another authorised distribution partner.
Trained qualified personnel	A qualified employee is deemed to be a person who is able to assess the tasks assigned to him and recognize possible hazards based on his/her training, knowledge and experience, as well as knowledge of pertinent regulations. The assessment of a person's technical training can also be based on several years of work in the relevant field.

Training	Definition
Electrician	Electricians are deemed to be people, who are able to complete work on electrical systems and recognize and avoid possible hazards independently based on his/her technical training and experience, as well as knowledge of pertinent standards and regulations. Electricians should be specifically trained for the working environment in which the are employed and know the relevant standards and regulations. Electricians must comply with the provisions of the applicable statutory directives on accident prevention.
Customer Service department	Customer Service department refers to service technicians, who have received proven training and have been authorised by ProMinent to work on the system.

Note for the system operator

The pertinent accident prevention regulations, as well as all other generally acknowledged safety regulations, must be adhered to!

1.3 Identcode DULCO® flex DFCa 030

Identcode			
DFCa	DULCO® flex DFCa 030		
		Type	
	030	DFCa 030, 0.433 l/revolution	
			Drive
		000	Pump without drive
			Step-down gears / 3 x 230 / 400 VAC
		A11	0.25 kW, 18 1/min, 467 l/h, 8 bar
		A12	0.37 kW, 28 1/min, 727 l/h, 8 bar
		A13	0.55 kW, 38 1/min, 987 l/h, 4 bar
		A14	0.55 kW, 55 1/min, 1,428 l/h, 2 bar
		A15	0.75 kW, 66 1/min, 1,714 l/h, 2 bar
			Manual adjustment gears / 3 x 230 / 400 VAC
		A21	0.75 kW, 10-59 1/min, 259-1,532 l/h, 2 bar
			Adjustment gears with integrated frequency converter / 1x 230 VAC
		A31	0.55 kW, 11.5-40 1/min, 298-1,039 l/h, 4 bar
		A32	0.75 kW, 18-64 1/min, 467-1,662 l/h, 2 bar
		A33	1.10 kW, 23-80 1/min, 597-2,078 l/h, 1 bar
			Adjustment gears (external frequency converter required) / 3 x 230 / 400 VAC
		A41	0.37 kW, 2-28 1/min, 51-727 l/h, 8 bar
		A42	0.75 kW, 4-57 1/min, 103-1,480 l/h, 2 bar
		A43	1.10 kW, 5-80 1/min, 129-2,078 l/h, 1 bar

Identcode										
DFCa	DULCO® flex DFCa 030									
				Hose material						
			0	NR						
			B	NBR						
			E	EPDM						
			R	NR-A						
			A	NBR-A						
			H	Hypalon						
					Hydraulic connection					
					A	VA BSP 1 1/4"				
					B	VA NPT 1 1/4"				
					C	PP BSP 1 1/4"				
					D	PVDF BSP 1 1/4"				
					F	PVC NPT 1 1/4"				
					G	Tri-Clamp, VA, 1 1/2"				
					H	DIN 11851, VA, NW32				
					I	DIN flange VA DN32				
					L	ANSI flange VA DN32				
					P	ANSI flange PVC DN32				
							Base plate			
						0	Base plate, lacquered steel			
						1	Base plate, stainless steel			
						2	Portable unit + lacquered steel base plate			
						3	Portable unit + stainless steel base plate			
								Leakage sensor		
							0	without leakage sensor		
							L	with leakage sensor		
									Rotor	
								0	Rotor with 2 rollers	
										Batch control
									0	without batch control
									C	with batch control
										Special version
										0 Standard
										Vacuum system
										0 none
										V with vacuum system

Identcode												
DFCa	DULCO®flex DFCa 030											
												Certification
											01	CE mark

1.4 Identcode DULCO®flex DFCa 040

Identcode						
DFCa	DULCO®flex DFCa 040					
		Type				
	040	DFCa 040, 0.91 l/revolution				
			Drive			
		000	Pump without drive			
			Step-down gears / 3 x 230 / 400 VAC			
		B11	0.55 kW, 18 1/min, 982 l/h, 8 bar			
		B12	0.55 kW, 29 1/min, 1,583 l/h, 8 bar			
		B13	0.75 kW, 38 1/min, 2,074 l/h, 4 bar			
		B14	1.10 kW, 54 1/min, 2,948 l/h, 2 bar			
		B15	1.50 kW, 66 1/min, 3,603 l/h, 2 bar			
			Manual adjustment gears / 3 x 230 / 400 VAC			
		B21	1.10 kW, 16-56 1/min, 873-3,057 l/h, 2 bar			
			Adjustment gears with integrated frequency converter / 1x 230 VAC			
		B31	1.10 kW, 12-36 1/min, 655-1,965 l/h, 4 bar			
		B32	1.50 kW, 15-53 1/min, 819-2,893 l/h, 2 bar			
		B33	2.20 kW, 22-77 1/min, 1201-4,204 l/h, 1 bar			
			Adjustment gears (external frequency converter required) / 3 x 230 / 400 VAC			
		B41	1.10 kW, 2-49 1/min, 109-2,675 l/h, 2 bar			
		B42	1.50 kW, 4-53 1/min, 218-2,893 l/h, 2 bar			
		B43	2.20 kW, 7-80 1/min, 382-4,368 l/h, 1 bar			
				Hose material		
			0	NR		
			B	NBR		
			E	EPDM		
			R	NR-A		
			A	NBR-A		
			H	Hypalon		
			N	Norprene (max. 2 bar)		
					Hydraulic connection	

Identcode												
DFCa	DULCO® flex DFCa 040											
				A	VA BSP 1 1/2"							
				B	VA NPT 1 1/2"							
				C	PP BSP 1 1/2"							
				D	PVDF BSP 1 1/2"							
				G	Tri-Clamp, VA, 1 1/2"							
				H	DIN 11851, VA, NW40							
				I	DIN flange VA DN40							
				L	ANSI flange VA DN40							
				P	ANSI flange PVC DN40							
						Base plate						
					0	Base plate, lacquered steel						
					1	Base plate, stainless steel						
					2	Portable unit + lacquered steel base plate						
					3	Portable unit + stainless steel base plate						
							Leakage sensor					
						0	without leakage sensor					
						L	with leakage sensor					
								Rotor				
							0	Rotor with 2 rollers				
									Batch control			
								0	without batch control			
								C	with batch control			
										Special version		
									0	Standard		
											Vacuum system	
										0	none	
										V	with vacuum system	
												Certification
											01	CE mark

1.5 Identcode DULCO® flex DFCa 050

Identcode		
DFCa	DULCO® flex DFCa 050	
		Type
	050	DFCa 050, 1.46 l/revolution

Identcode						
DFCa	DULCO® flex DFCa 050					
			Drive			
		000	Pump without drive			
			Step-down gears / 3 x 230 / 400 VAC			
		C11	0.55 kW, 14.1 1/min, 1,235 l/h, 8 bar			
		C12	0.75 kW, 21 1/min, 1,839 l/h, 8 bar			
		C13	1.10 kW, 30 1/min, 2,628 l/h, 4 bar			
		C14	1.50 kW, 38 1/min, 3,328 l/h, 4 bar			
		C15	1.50 kW, 48 1/min, 4,204 l/h, 2 bar			
		C16	2.20 kW, 58 1/min, 5,080 l/h, 2 bar			
			Manual adjustment gears / 3 x 230 / 400 VAC			
		C21	1.15 kW, 8.8-44 1/min, 770-3,854 l/h, 4 bar			
			Adjustment gears with integrated frequency converter / 1x 230 VAC			
		C31	1.50 kW, 9-32 1/min, 788-2,803 l/h, 4 bar			
		C32	2.20 kW, 15-54 1/min, 1314-4,730 l/h, 2 bar			
		C33	3.00 kW, 22-77 1/min, 1927-6,745 l/h, 1 bar			
			Adjustment gears (external frequency converter required) / 3 x 230 / 400 VAC			
		C41	1.50 kW, 2-32 1/min, 175-2,803 l/h, 4 bar			
		C42	2.20 kW, 4-54 1/min, 350-4,730 l/h, 2 bar			
		C43	3.00 kW, 5.5-77 1/min, 481-6,745 l/h, 1 bar			
				Hose material		
				0	NR	
				B	NBR	
				E	EPDM	
				R	NR-A	
				A	NBR-A	
				H	Hypalon	
					Hydraulic connection	
					I	DIN flange VA DN40
					G	Tri-Clamp, VA, 2"
					H	DIN 11851, VA, NW50
					J	DIN flange PP DN40
					K	DIN flange VA, Halar coated + PVDF inserts DN40
					L	ANSI flange VA DN40
					M	ANSI flange PP DN40
					N	ANSI flange VA, Halar coated + PVDF inserts DN40
						Base plate

Identcode												
DFCa	DULCO® flex DFCa 050											
					0	Base plate, lacquered steel						
					1	Base plate, stainless steel						
					2	Portable unit + lacquered steel base plate						
					3	Portable unit + stainless steel base plate						
							Leakage sensor					
						0	without leakage sensor					
						L	with leakage sensor					
								Rotor				
							0	Rotor with 2 rollers				
									Batch control			
								0	without batch control			
										Special version		
									0	Standard		
											Vacuum system	
										0	none	
										V	with vacuum system	
												Certification
											01	CE mark

1.6 Identcode DULCO® flex DFCa 060

Identcode			
DFCa	DULCO® flex DFCa 060		
		Type	
	060	DFCa 060, 3.12 l/revolution	
			Drive
		000	Pump without drive
			Step-down gears / 3 x 230 / 400 VAC
		D11	2.20 kW, 18 1/min, 3.3 m^3/h, 8 bar
		D12	2.20 kW, 21 1/min, 3.9 m^3/h, 8 bar
		D13	3.00 kW, 27 1/min, 5.0 m^3/h, 8 bar
		D14	3.00 kW, 33 1/min, 6.1 m^3/h, 4 bar
		D15	3.00 kW, 42 1/min, 7.8 m^3/h, 4 bar
		D16	3.00 kW, 47 1/min, 8.7 m^3/h, 2 bar
		D17	3.00 kW, 57 1/min, 10.6 m^3/h, 2 bar
			Manual adjustment gears / 3 x 230 / 400 VAC

Identcode																
DFCa	DULCO® flex DFCa 060															
		D21	4.0 kW, 8-49 1/min,1.4-9.1 m^3/h, 2 bar													
			Adjustment gears with integrated frequency converter / 1x 230 VAC													
		D31	3.0 kW, 7-25 1/min, 1.3-4.6 m^3/h, 8 bar													
		D32	4.0 kW, 15-53 1/min, 2.8-9.9 m^3/h, 2 bar													
					Hose material											
				0	NR											
				B	NBR											
				E	EPDM											
				R	NR-A											
				A	NBR-A											
				H	Hypalon											
						Hydraulic connection										
						I	DIN Flange, VA, DN50									
						G	Tri-Clamp, VA, 2 1/2"									
						H	DIN 11851, VA, NW50									
						K	DIN flange VA, Halar coated + PVDF inserts, DN50									
						L	ANSI flange VA DN50									
						M	ANSI flange PP, DN50									
						N	ANSI flange VA, Halar coated + PVDF inserts, DN50									
								Base plate								
							0	Base plate, lacquered steel								
							1	Base plate, stainless steel								
							2	Portable unit + lacquered steel base plate								
							3	Portable unit + stainless steel base plate								
									Leakage sensor							
								0	without leakage sensor							
								L	with leakage sensor							
										Rotor						
									0	Rotor with 2 rollers						
											Batch control					
										0	without batch control					
										C	with batch control					
												Special version				
											0	Standard				
													Vacuum system			
												0	none			

Identcode												
DFCa	DULCO® flex DFCa 060											
										V	with vacuum system	
												Certification
											01	CE mark

1.7 Identcode DULCO® flex DFCa 070

Identcode						
DFCa	DULCO® flex DFCa 070					
		Type				
	070	DFCa 070, 8.05 l/revolution				
			Drive			
		000	Pump without drive			
			Step-down gears / 3 x 230 / 400 VAC			
		E11	2.20 kW, 14 1/min, 6.7 m^3/h, 8 bar			
		E12	3.0 kW, 21 1/min, 10.1 m^3/h, 8 bar			
		E13	4.0 kW, 26 1/min, 12.5 m^3/h, 4 bar			
		E14	4.0 kW, 32 1/min, 15.4 m^3/h, 4 bar			
		E15	5.5 kW, 37 1/min, 17.8 m^3/h, 4 bar			
		E16	5.5 kW, 46 1/min, 22.2 m^3/h, 2 bar			
		E17	5.5 kW, 54 1/min, 26.0 m^3/h, 2 bar			
			Adjustment gears with integrated frequency converter / 1x 230 VAC			
		E31	5.5 kW, 9-23 1/min, 4.3-15.4 m^3/h, 4 bar			
		E32	7.5 kW, 14-47 1/min, 6.7-22.7 m^3/h, 2 bar			
				Hose material		
			0	NR		
			B	NBR		
			E	EPDM		
			R	NR-A		
			A	NBR-A		
			H	Hypalon		
					Hydraulic connection	
				I	DIN flange VA, DN65	
				G	Tri-Clamp, VA, 3"	
				H	DIN 11851, VA, NW65	
				J	DIN flange PP, DN65	
				L	ANSI flange VA, DN65	

Identcode												
DFCa	DULCO®flex DFCa 070											
				M	ANSI flange PP, DN65							
				Q	DIN flange VA Halar coated, DN65							
				R	ANSI flange VA Halar coated, DN65							
						Base plate						
					0	Base plate, lacquered steel						
					1	Base plate, stainless steel						
					2	Portable unit + lacquered steel base plate						
					3	Portable unit + stainless steel base plate						
							Leakage sensor					
						0	without leakage sensor					
						L	with leakage sensor					
								Rotor				
							0	Rotor with 2 rollers				
									Batch control			
								0	without batch control			
										Special version		
									0	Standard		
											Vacuum system	
										0	none	
										V	with vacuum system	
												Certification
											01	CE mark

1.8 Identcode DULCO®flex DFCa 70D

Identcode			
DFCa	DULCO®flex DFCa 70D		
		Type	
	70D	DFCa 70D, 15.83 l/revolution, double head version	
			Drive
		000	Pump without drive
			Step-down gears / 3 x 230 / 400 VAC
		F11	5.5 kW, 15 1/min, 14.2 m^3/h, 4 bar
		F12	7.5 kW, 22 1/min, 20.8 m^3/h, 2 bar
		F13	7.5 kW, 31 1/min, 29.4 m^3/h, 2 bar
		F14	9.2 kW, 40 1/min, 38.0 m^3/h, 2 bar

Identcode												
DFCa	DULCO® flex DFCa 70D											
				Hose material								
			0	NR								
			B	NBR								
			E	EPDM								
			R	NR-A								
			A	NBR-A								
					Hydraulic connection							
				I	DIN Flange, VA, DN80							
				G	Tri-Clamp, VA, 4"							
				H	DIN 11851, VA, NW80							
				L	ANSI flange, VA DN80							
						Base plate						
					0	Base plate, lacquered steel						
					1	Base plate, stainless steel						
							Leakage sensor					
						0	without leakage sensor					
						L	with leakage sensor					
								Rotor				
							0	Rotor with 2 rollers				
									Batch control			
								0	without batch control			
										Special version		
									0	Standard		
											Vacuum system	
										0	none	
												Certification
											01	CE mark

2 Safety and responsibility

2.1 General safety information

WARNING!

Live parts

Possible consequence: Fatal or very serious injuries

- Measure: The device must be disconnected from the power supply before it is opened
- Isolate damaged, faulty or manipulated devices from the mains in order to de-energise.

WARNING!

Emergency stop switch

Possible consequence: Fatal or very serious injuries

An emergency stop switch is to be connected for the entire plant. This should enable the entire plant to be shut down in the event on an emergency in such a way that the overall plant can be brought into a safe condition.

WARNING!

Unauthorised access

Possible consequence: Fatal or very serious injuries

- Measure: Ensure that there can be no unauthorised access to the unit

WARNING!

Hazardous media / contamination of persons and equipment

Possible consequence: Fatal or very serious injuries. material damage

- Ensure that the pump hoses are resistance against the media being conveyed
- Always observe the the safety data sheets for the media to be conveyed. The system operator must ensure that these safety data sheets are available and that they are kept up-to-date
- The safety data sheets for the media being conveyed are always decisive for initiating counter measures in the event of leakage to the media being conveyed
- Observe the general restrictions in relation to viscosity limits, chemical resistance and density
- Always switch the pump off before exchanging the pump hose

WARNING!

Correct and proper use

Possible consequence: Fatal or very serious injuries

- The unit is not intended to convey or regulate gaseous or solid media
- Do not exceed the rated pressure, speed or temperature for the pump
- The unit may only be used in accordance with the technical data and specifications provided in these operating instructions and in the operating instructions for the individual components
- The system is not designed for use in areas at risk from explosion
- Only switch the pump on if it has been properly fastened to the floor
- Only switch the pump on if it the front cover has been attached.

WARNING!

Operational lifetime of the pump hoses

Possible consequence: Fatal or very serious injuries

The operational lifetime of the pump hoses cannot be precisely specified. For this reason, the possibility of fracture and consequential leakage of liquids must be accounted for. If the hose rupture alarm (optional) is fitted, then the pump can be stopped and / or an electrical valve can be actuated.

In addition, you must avoid particles from untight hoses being introduced into the media being conveyeed. This can be achieved e.g. by means of filtration, a hose rupture alarm or other means suitable for the respective process.

CAUTION!

CIP cleaning

In the event of CIP cleaning, it is necessary to obtain information from the manufacturer about correct installation of the pump (a special installation is required), as well as regarding the compatibility of the cleaning agents with the pump hoses of the pump and the other hydraulic connections.

Cleaning should be undertaken at the recommended maximum temperature.

CAUTION!

Direction of rotation / flow direction

Possible consequence: Material damage right through to destruction of the unit

- The pump's direction of rotation in relation to the desired flow direction must be checked prior to every start.

CAUTION!

Environmental influences

Possible consequence: Material damage right through to destruction of the unit

- The device is not suitable for outdoor operation
- Take suitable measures to protect the device from environmental influences such as:
  - UV rays
  - Moisture
  - Frost, etc.

3 Functional description

Brief functional description

The package contents supplied with the DULCOflex® DFCa is selectable via the identcode.

The DULCOflex® DFCa is a displacement pump. The feed chemical is transported by the rotor squeezing the hose in the direction of flow. No valves are needed for this. This ensures gentle handling of the metered media.

The DULCOflex® DFCa has been designed for safe and uncomplicated operation, as well as straightforward maintenance.

The DULCOflex® DFCa can be used for many different media. However, this pump type is often the optimal solution for abrasive, shear-sensitive and viscose media.

Typical areas of use include processes where only a low discharge pressure is required (max. 8 bar).

3.1 Construction

Main modules:

- Drive Unit
- Housing
- Base frame

The pump housing is closed off with a screwed front cover in order to avoid the risk of injury.

The motor serves to drive the rotor. Two rollers at the ends of the rotor serve to press the pump hose against the pump housing.

The rotary movement of the rotors alternately press and relax the rollers in relation to the pump hose. This serves to suck the media in and convey it into the metering line.

3.2 Overview of the Device

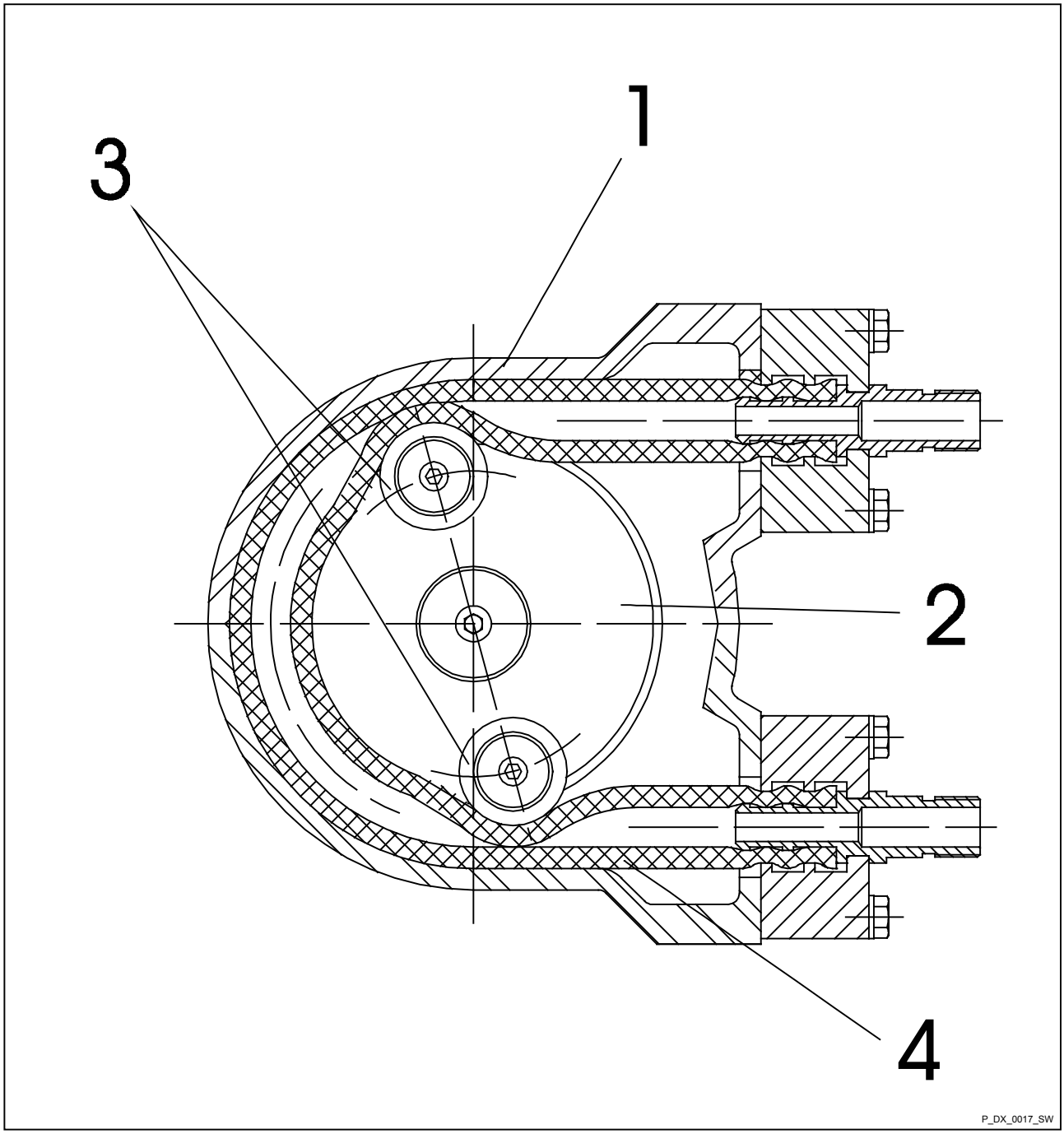


Fig. 1: Diagram of functional principle

1 Housing
2 Rotor
3 Rollers
4 Hose

4 Transport, storage, assembly and Installation

- **User qualification, transport and storage:** instructed persons, see *Chapter 1.2 “Users' qualifications” on page 5*
- **User qualification, assembly:** trained qualified personnel, see *Chapter 1.2 “Users' qualifications” on page 5*
- **User qualification, electrical installation:** Qualified electrician, see *Chapter 1.2 “Users' qualifications” on page 5*

WARNING!
Safety data sheet
Possible consequence: Fatal or very serious injuries

Always observe the corresponding data sheets for the media when carrying out any tasks which involve contact with the media that is to be conveyed.

4.1 Transport

Transport

- The pump is protected by means of cardboard packaging
- The packaging materials can be recycled
- For environmental conditions for storage and transportation see

4.2 Storage

Storage

- The pump hose should be removed from the housing during the duration of storage
- For storage durations longer than 60 days, the coupling surfaces (terminals, reducing adaptors, motors) are to be protected with suitable antioxidant agents
- For environmental conditions for storage and transportation see

4.3 Assembly

CAUTION!
Possible consequence: Slight or minor injuries, material damage.

Carry out the assembly work before the electrical installation is undertaken!

Observe the permissible environmental conditions!

4.3.1 Ambient conditions

NOTICE!

Ambient conditions

Possible consequence: Property damage and increased wear and tear

Assembly is to be carried out in the following order. If the must has to be installed outdoors, then it is to be equipped with protection against sunlight and weather influences.

When positioning the pump, ensure that sufficient room for access is provided for all types of maintenance work.

There are limit values for temperature and pressure, depending on the type of hose selected. These limit values are described in the following section:

Limit values for hose temperature and pressure

Material Hose	min. temp. (°C) Feed chemical	max. temp. (°C) Feed chemical	min. temp. (°C) Environment	max. pressure (bar)
NR	-20	80	-40	8
NBR	-10	80	-40	8
EPDM	-10	80	-40	8
NR-A	-10	80	-40	8
NBR-A	-10	80	-40	8
NORPREN	-40	120	-40	2

Also observe the general safety information, see *Chapter 2.1 "General safety information" on page 16*

4.3.2 Alignment of the suction side

The pump is to be positioned as near as possible to the liquid container, so that the suction side is kept as short and straight as possible.

The suction line must be absolutely airtight and made of a suitable material, so that it is not squeezed together under vacuum.

The diameter must correspond to the rated diameter of the pump hose. A larger diameter is recommended in the event of viscose liquids.

The pump is self-priming and does not require an admission valve. The pump is reversible and the suction connection can therefore comprise of one of two options. Normally the option is selected which is best suited to the physical conditions of the installation.

It is recommended to use a flexible transition between two fixed pipes and the hydraulic connection of the pump, in order to avoid the transmission of vibrations.

4.3.3 Alignment of the discharge side

The discharge line is to be kept as straight and short as possible, in order to avoid performance reduction.

The diameter must correspond to the rated diameter of the pump hose. A larger diameter is recommended in the event of viscose liquids.

It is recommended to use a flexible transition between two fixed pipes and the hydraulic connection of the pump, in order to avoid the transmission of vibrations.

4.3.4 Adjusting the roller pressure

The peristaltic pump is equipped with spacer plates (6), in order to adjust the precise pressure distance to the roller (9) (dependent on speed and operating pressure).

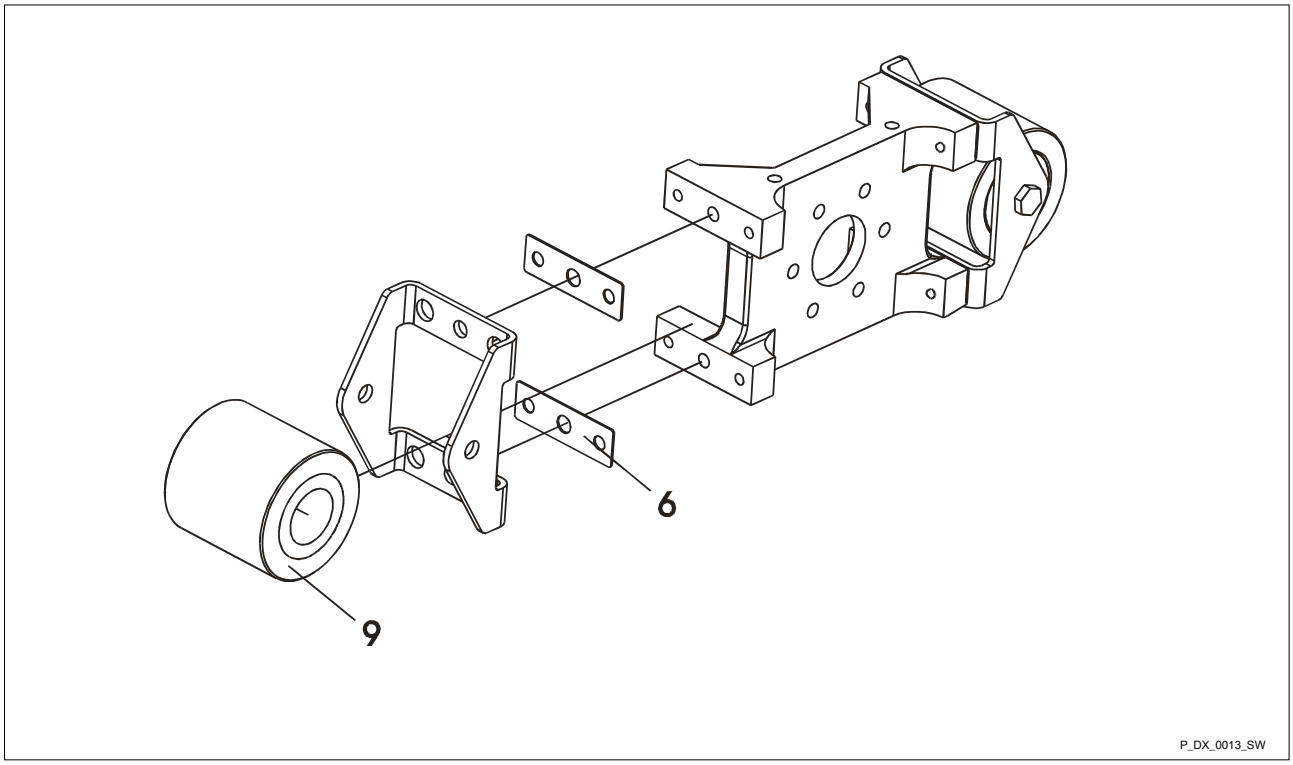


Fig. 2: Space plates / roller

6 Spacer plates
9 Roller

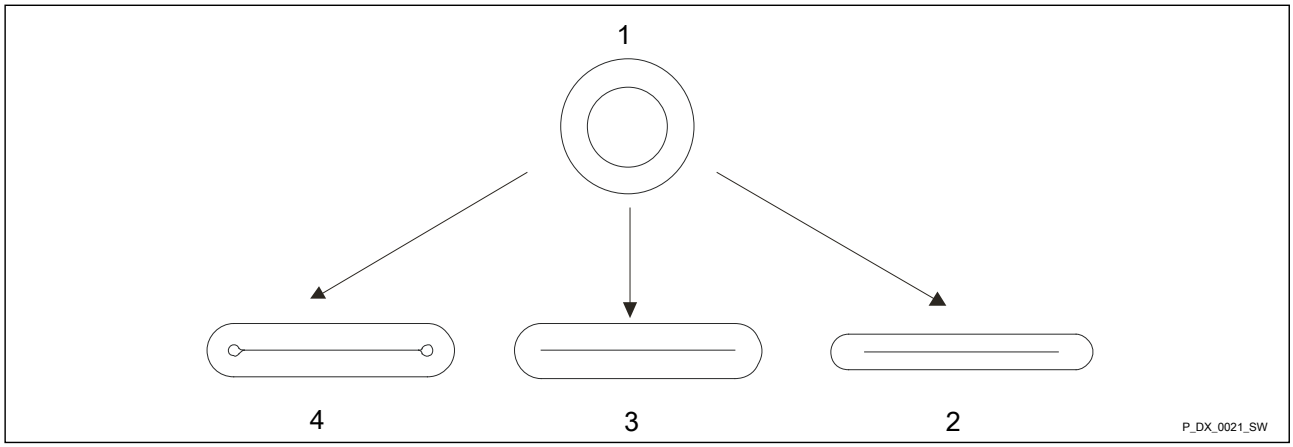


Fig. 3: Squeezing the hose

1 Hose in normal shape
2 Excessive squeezing (increased wear and tear to pump and hose)
3 Perfect squeezing
4 Insufficient squeezing (backflowing media in the cavity will destroy the hose within a short period of time)

The spacer plates are fitted in the factory. You can adapt the number of spacer plates to the actual operating conditions according to the following table.

DFCa 030 / Number of spacer plates of 0.5 mm thickness (except Norpren):

1/min	0-19	20-39	40-59	60-79	80-99
bar					
0.5	2	2	1	1	1
2.0	2	2	2	2	2
4.0 *	3	2	2	2	2
6.0	3	3	3	2	-
8.0	4	3	3	-	-
* Supplied state					

DFCa 040 / Number of spacer plates of 1.0 mm thickness (except Norpren):

1/min	0-19	20-39	40-59	60-79	80-99
bar					
0.5	4	4	4	4	3
2.0	5	4	4	4	4
4.0 *	5	5	5	4	4
6.0	6	5	5	-	-
8.0	6	6	-	-	-
* Supplied state					

DFCa 040 / Number of spacer plates of 1.0 mm thickness (except Norpren):

1/min	0-19	20-39	40-59	60-79	80-99
bar					
0.5	14	14	14	14	14
2.0*	14	14	14	14	14
* Supplied state					

DFCa 050 / Number of spacer plates of 1.0 mm thickness:

1/min	0-19	20-39	40-59	60-79	80-99
bar					
0.5	1	1	1	0	0
2.0	2	1	1	1	1
4.0 *	2	2	2	2	2
6.0	3	3	3	3	-
8.0	4	3	-	-	-
* Supplied state					

DFCa 060 / Number of spacer plates of 1.0 mm thickness:

1/min	0-19	20-39	40-59	60-79	80-99
bar					
0.5	7	6	6	6	6
2.0	7	7	7	7	6
4.0 *	7	7	7	7	7
6.0	8	7	7	7	7
8.0	8	8	8	7	-
* Supplied state					

DFCa 070 / Number of spacer plates of 1.0 mm thickness:

1/min	0-19	20-39	40-59	60-79	80-99
bar					
0.5	1	1	0	0	0
2.0	1	1	1	0	0
4.0 *	2	2	2	1	1
6.0	3	3	2	-	-
8.0	4	3	3	-	-
* Supplied state					

4.3.5 Performance curves

NOTICE!

Maximum pressure under continuous operation

The dotted line indicates the limit for maximum pressure under continuous operation

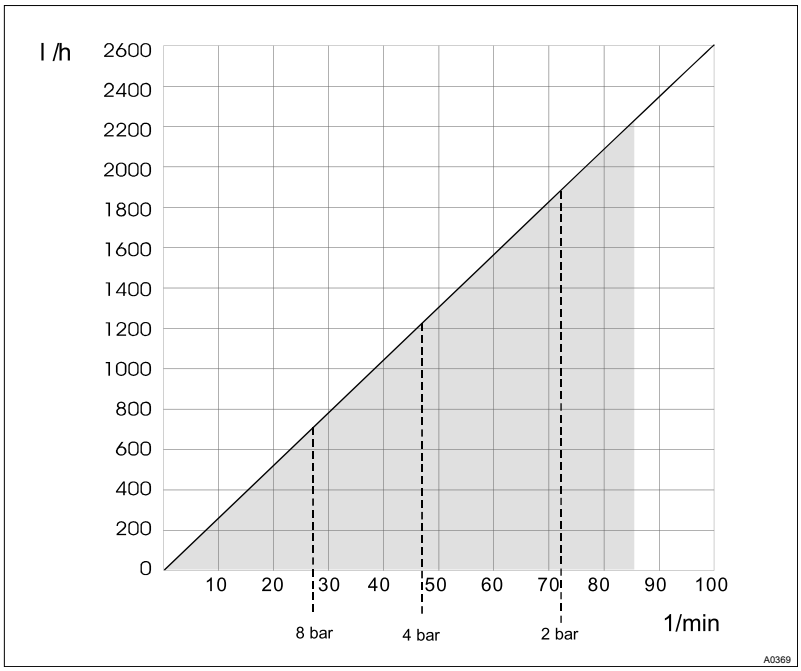


Fig. 4: DFCa 030

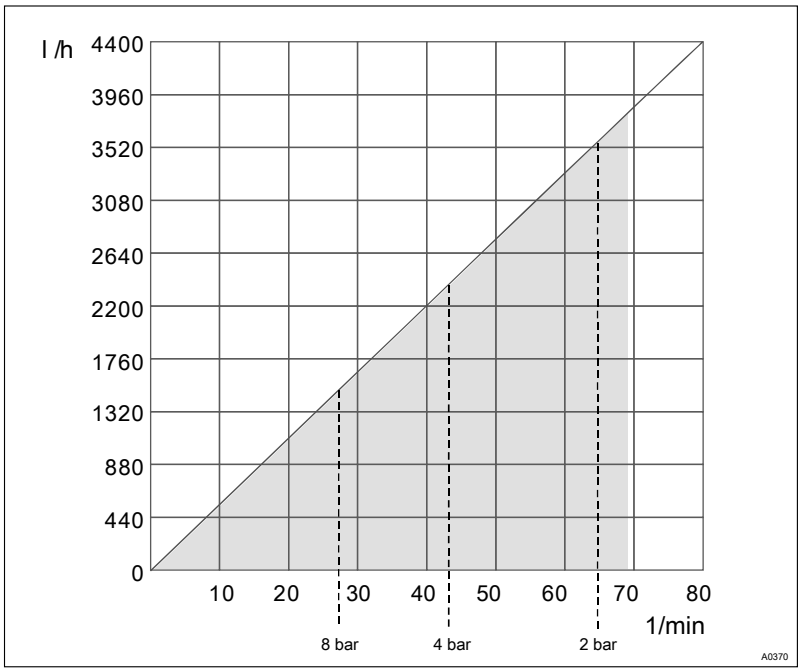


Fig. 5: DFCa 040

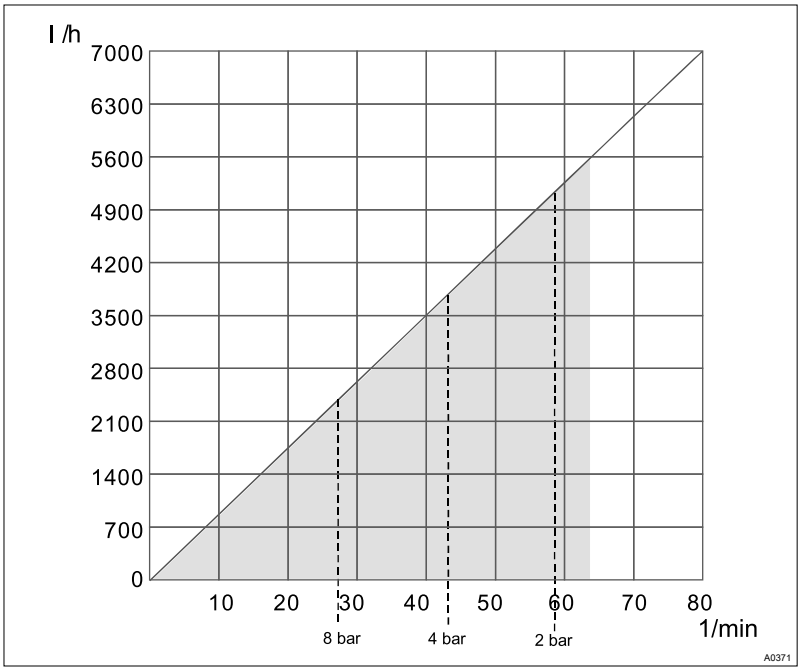


Fig. 6: DFCa 050

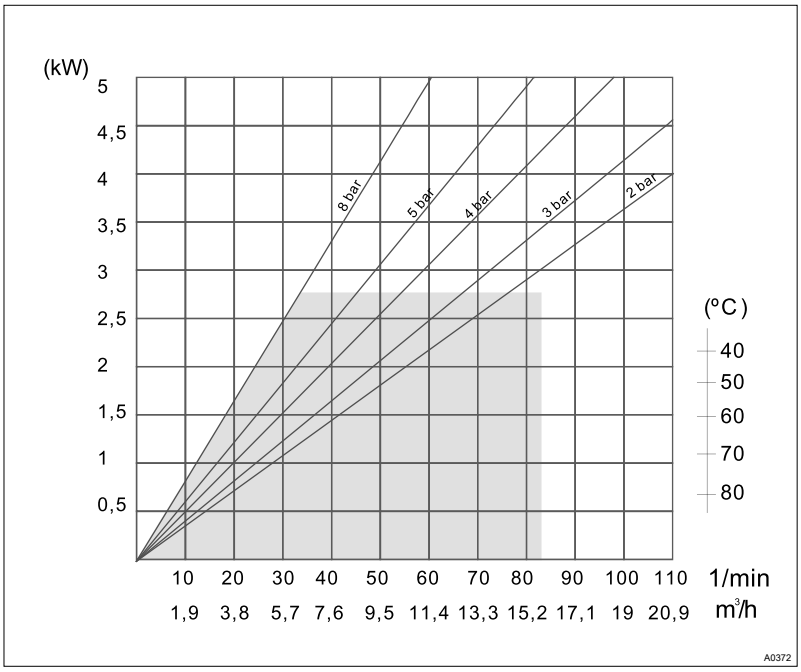


Fig. 7: DFCa 060

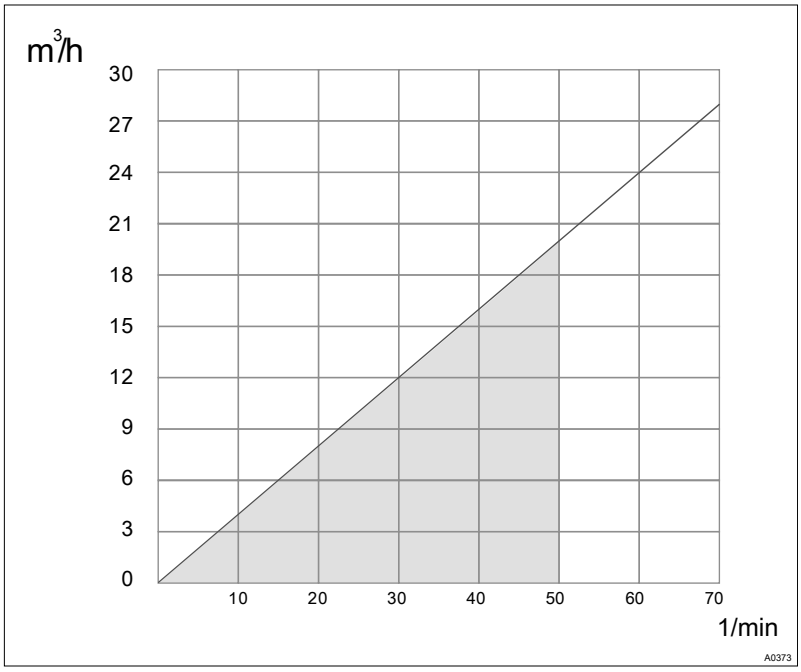


Fig. 8: DFCa 070

5 Commissioning

- **User qualification, commissioning:** trained user, see *Chapter 1.2 “Users' qualifications” on page 5*

5.1 Testing prior to commissioning the pump

The following tests are to be carried out:

- Ensure that the pump has not been damaged during transportation or storage. Immediately report any damage to the supplier
- Check that the mains voltage is suitable for the motor
- Ensure that the hose is suitable for the fluid to be conveyed and that it is not damaged
- Make sure that the temperature of the liquid does not exceed the recommended temperature range
- Only switch the pump on if it the front cover has been properly attached
- Check that the rollers are correctly fitted and fastened
- Check that the hose and rollers are sufficiently lubricated
- Check that the thermal overload protection (not included in the delivery scope) corresponds to the value specified on the motor type plate
- Check whether the direction of rotation is correctly adjusted
- Check that the optional electrical components are connected and are working properly
- Install a manometer in the pressure line if the back-pressure value is unknown
- Check the operating instructions in order to ensure that the flow values, pressures and power consumption of the motor do not exceed the rated values
- Install a pressure relief valve in the pressure line in order to protect the pump in the event that a valve is unintentionally closed off or the line is blocked in another way.

6 Operation of the peristaltic pump

- **User qualification, operation:** instructed persons, see
  ↳ *Chapter 1.2 “Users' qualifications” on page 5*

The peristaltic pump is to be fully integrated into the customer's designated plant and is then controlled by this plant. It is not possible to operate the pump directly.

7 Maintenance, repair, malfunctions, disposal and spare parts

- **User qualification, maintenance and disposal:** instructed persons, see *Chapter 1.2 "Users' qualifications" on page 5*
- **User qualification, repair and malfunctions:** trained user, see *Chapter 1.2 "Users' qualifications" on page 5*

7.1 Maintenance

CAUTION!
Disconnect the pump from the mains
Possible consequence: Personal injury

You may only carry out work on the pump after it has previously been switched off and disconnected from the mains.

Lubrication

- Check that the rollers and the hose are sufficiently lubricated
  - Check every 200 operating hours
- Check whether the oil level is correct for the step-down gears
  - Exchange the oil at regular intervals in accordance with the step-down gear maintenance manual.

7.2 Exchanging the pump hoses

Exchanging the pump hoses - dismantling

1. Close off all valves, in order to prevent leakage of the feed chemical
2. Dismantle the pump hoses from both discharge and suction sides
3. Remove the front cover
4. Remove a roller incl. the spacer plate (the roller that is not touching the pump hose)
5. Turn the rotor with the help of the motor so that the remaining roller is not pressing against the pump hose
6. Remove the pressure flange from the pump housing
7. Remove the pump hose to be exchanged
8. Dismantle the hydraulic connections from both pump hose ends

Exchanging the pump hoses - installation

1. Clean the interior surfaces of the pump housing
2. Lubricate the internal surfaces of the pump housing at the contact surfaces to the pump hose
3. Check the rollers. Ensure that the roller surfaces are not damaged
4. Attach the hydraulic connections at both hose ends with the help of the pressure flange
5. Lay the pump hose into the pump housing
6. Lubricate the pump hose and the rollers
7. Fasten the pressure flange to the pump casing

8. Turn the rotor with the help of the motor so that the remaining roller presses against the pump hose
9. Re-attach the second roller with spacer plates back onto the rotor
10. Attach the front cover to the pump housing
11. Mount the pump hoses from both discharge and suction sides
12. Open all of the valves

7.3 Troubleshooting

Problem	Possible cause	Solution
Increased pump temperature	Pump hose has no lubricant	Lubricate pump hose
	Increased product temperature	Reduce product temperature
	Insufficient or poor suction conditions	Check suction line for blockages
	Pump speed too high	Reduce pump speed
Reduced flow or pressure	Valves on discharge and or suction side completely or partially closed	Open valves
	Pump hose insufficiently compressed	Check roller fastening
	Pump hose rupture (the product leaks out into the housing)	Exchange pump hose
	Partial blockage of the suction line	Clean pipe
	Insufficient product quantity in storage container	Fill storage container or exchange pump
	Insufficient diameter on the suction side	Increase the diameter on the suctions side, as far as possible
	Suction line too long	Shorten the suction line, as far as possible
	High viscosity of medium	Reduce viscosity, as far as possible
	Air introduction in the suction connections	Check connections and accessories for air tightness
Vibrations on pumps and pipelines	The pipes are not correctly fastened	Fasten pipes correctly (e.g. wall brackets)
	Pump speed too high	Reduce pump speed
	Insufficient nominal width of the pipes	Increase nominal width
	Pump base plate loose	Fasten base plate
	Pulsation dampers insufficient or missing	Install pulsation dampers on suction and / or discharge side.
Short operational lifetime of the hoses	Chemical exposure	Check the compatibility of the hose with the liquid being conveyed, the cleaning fluid and the lubricant

Problem	Possible cause	Solution
	High pump speed	Reduce pump speed
	High conveying temperature	Reduce product temperature
	High operating pressure	Reduce operating pressure
	Pump cavitations	Check the suction conditions
Pump hose pulled into the pump housing	High inlet pressure (> 3 bar)	Reduce inlet pressure
	Pump hose filled with deposits	Clean or replace the pump hose
	Holder (pressure flange) insufficiently tightened	Re-tighten holder (pressure flange)
The pump does not start up	Insufficient motor performance	Check motor and replace if necessary
	Insufficient output from frequency converter	The frequency converter must match the motor
		Check voltage. Start occurs at minimum 10 Hz
	Blockage in the pump	Check if the suction or discharge side is blocked. Rectify blockage

7.4 Disposal of Used Parts

WARNING!

Danger due to feed chemicals

Possible consequence: Fatal or serious injuries

In the event that damage to the pump hose causes the pump to be contaminated with feed chemicals, then it is to be decontaminated with suitable agents (refer to the feed chemical safety data sheets).

NOTICE!

If no Declaration of Decontamination is affixed to the delivery, acceptance of the devices will be refused.

(also available as download from: www.prominent.com)

A signed "Declaration of Decontamination" is required by law and in order to protect our staff, before you order can be processed.

Please ensure that this is attached to the outside of the package. Otherwise we are unable to accept your delivery.

NOTICE!

Regulations governing disposal of used parts

– Note the current national regulations and legal standards which apply in your country

The pump hose is to be removed and disposed of on-site before sending the pump to ProMinent Dosiertechnik GmbH, Heidelberg / Germany.

ProMinent Dosiertechnik, Heidelberg/Germany is prepared to take back clean used parts.

7.5 Spare parts

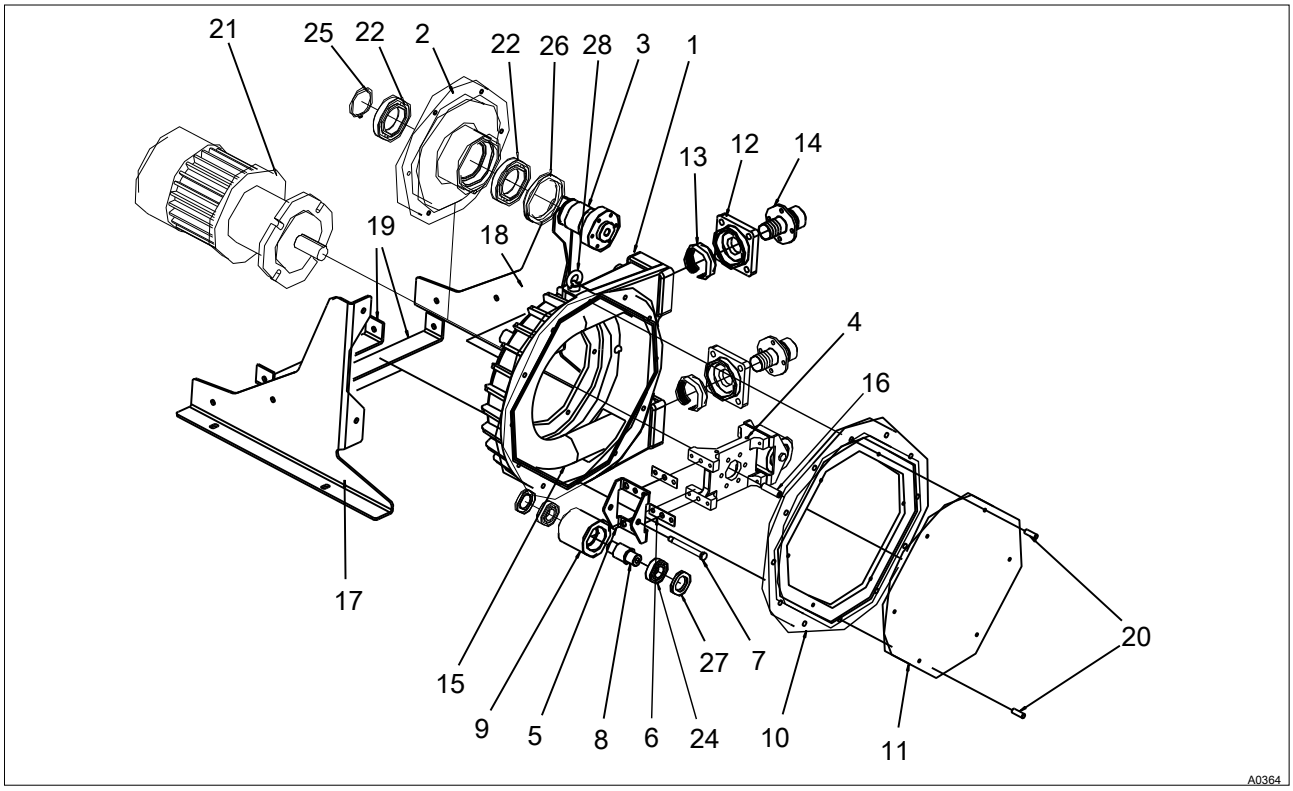


Fig. 9: Spare parts exploded view DFCa 30

DFCa 030 refer to Fig. 9				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
1	Pump housing	1	107.00.01	
2	Ball bearing housing	1	107.00.03	
3	Rotor shaft	1	107.00.04	
4	Rotor	1	107.00.05	
5	Roller holder	2	107.00.06	
6	Spacer plate		107.00.07	
7	Headless screw	2	107.00.08	
8	Roller shaft	2	107.00.09	
9	Roller	2	107.00.11	
10	Metal cover	1	107.00.13	
11	Front cover (polycarbonate)	1	107.00.14	
12	Pressure flange, standard	2	107.00.15	
13	Press ring	2	100.00.05	
14	Connection VA 1 1/4" BSP	2	107.00.17	
	Connection VA 1 1/4" NPT	2	107.00.34	
	Connection DIN 11851 NW32	2	107.00.35	
	Connection TRI-CLAMP	2	107.00.36	

DFCa 030 refer to Fig. 9				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
	Connection DIN DN32 VA	2	107.00.37	
	Connection ANSI DN32 VA	2	107.00.38	
	Connection PP 1 1/4" BSP	2	107.00.39	
15	Pump hose NR	1		1037183
	Pump hose NR-A	1		1037186
	Pump hose NBR	1		1037184
	Pump hose NBR-A	1		1037187
	Pump hose EPDM	1		1037185
	Pump hose HYPALON	1		1037188
16	Cap	1	110.00.23	
17	Base plate left	1	100.01.24	
	Base plate left, stainless steel	1	100.01.34	
18	Base plate right	1	100.01.25	
	Base plate right, stainless steel	1	100.01.35	
19	Base plate centre	2	100.01.26	
	Base plate centre, stainless steel	2	100.01.36	
20	Stay bolts	2	102.00.14	
21	Drive	1		
22	Ball bearings	2	100.01.28	
24	Ball bearings	4	107.00.30	
25	Rotor washer	1	100.01.31	
26	Seal	1	100.01.32	
27	Seal	4	100.01.33	
28	Lifting lug	1	106.00.40	
29	Drain plug FMP	3	107.00.41	

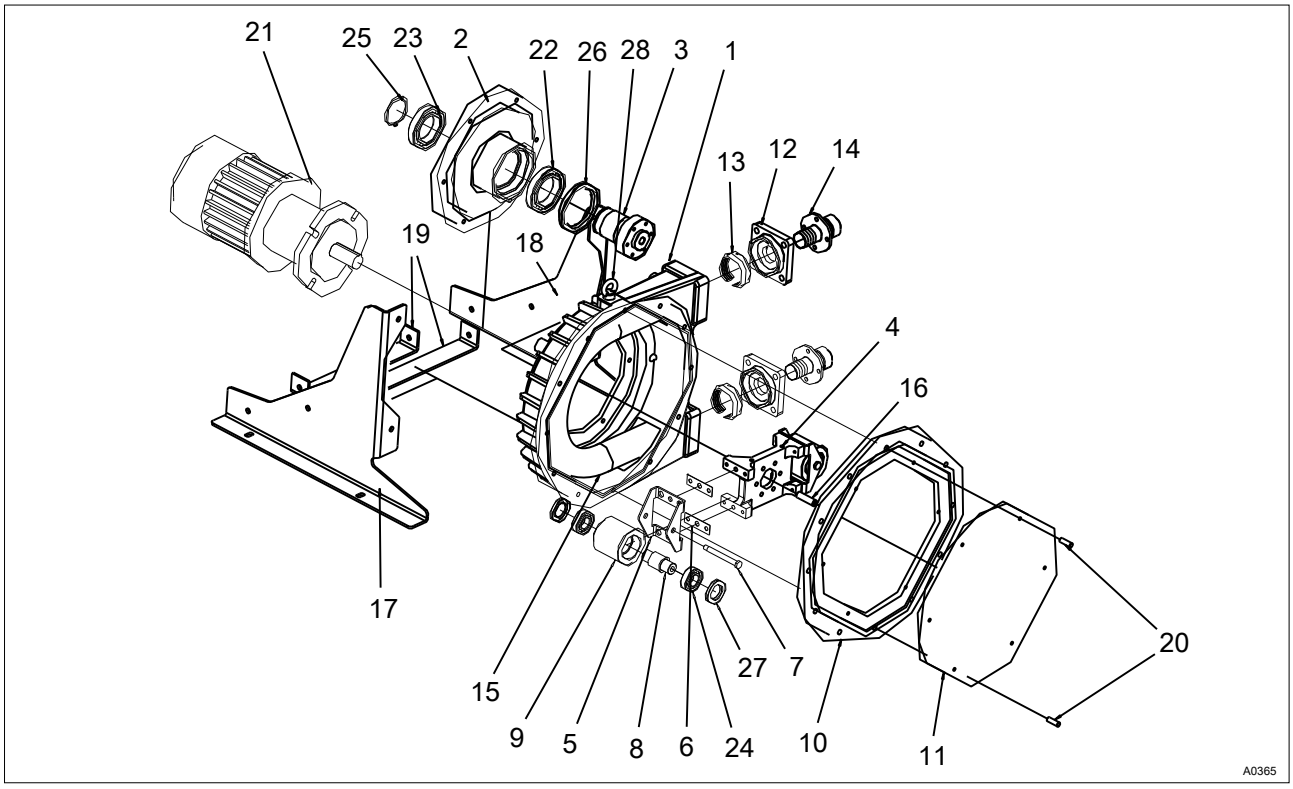


Fig. 10: Spare parts exploded view DFCa 40

DFCa 040 refer to Fig. 10				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
1	Pump housing	1	106.00.01	
2	Ball bearing housing	1	106.00.03	
3	Rotor shaft	1	106.00.04	
4	Rotor	1	106.00.05	
5	Roller holder	2	106.00.06	
6	Spacer plate 1 mm		106.00.07	
	Spacer plate 4 mm		106.00.49	
7	Headless screw	2	106.00.08	
8	Roller shaft	2	106.00.09	
9	Roller	2	106.00.11	
10	Metal cover	1	106.00.13	
	Metal cover (vacuum version)		106.00.43	
11	Front cover (polycarbonate)	1	106.00.14	
12	Pressure flange, standard	2	106.00.15	
13	Press ring	2	104.00.05	
14	Connection VA 1 1/2" BSP	2	106.00.17	
	Connection VA 1 1/2" NPT	2	106.00.34	

DFCa 040 refer to Fig. 10				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
	Connection DIN 11851 NW40	2	106.00.35	
	Connection TRI-CLAMP	2	106.00.36	
	Connection DIN DN40 VA	2	106.00.37	
	Connection ANSI DN40 VA	2	106.00.38	
	Connection PP 1 1/2" BSP	2	106.00.39	
	Connection PVDF 1 1/2" BSP	2	106.00.41	
	Connection PP 1 1/2" NPT	2	106.00.47	
	Connection SMS-38	2	106.00.42	
15	Pump hose NR	1		1037192
	Pump hose NR-A	1		1037195
	Pump hose NBR	1		1037193
	Pump hose NBR-A	1		1037196
	Pump hose EPDM	1		1037194
	Pump hose HYPALON	1		1037197
	Pump hose NORPRENE			1037198
16	Cap	1	110.00.23	
17	Base plate left	1	106.00.24	
	Base plate left, stainless steel	1	106.00.44	
18	Base plate right	1	106.00.25	
	Base plate right, stainless steel	1	106.00.45	
19	Base plate centre	2	106.00.26	
	Base plate centre, stainless steel	2	106.00.46	
20	Stay bolts	2	106.00.27	
21	Drive	1		
22	Ball bearings	1	106.00.28	
23	Ball bearings	1	106.00.29	
24	Ball bearings	4	106.00.30	
25	Rotor washer	1	106.00.31	
26	Seal	1	106.00.32	
27	Seal	4	106.00.33	
28	Lifting lug	1	106.00.40	
29	Drain plug FMP	3	107.00.41	

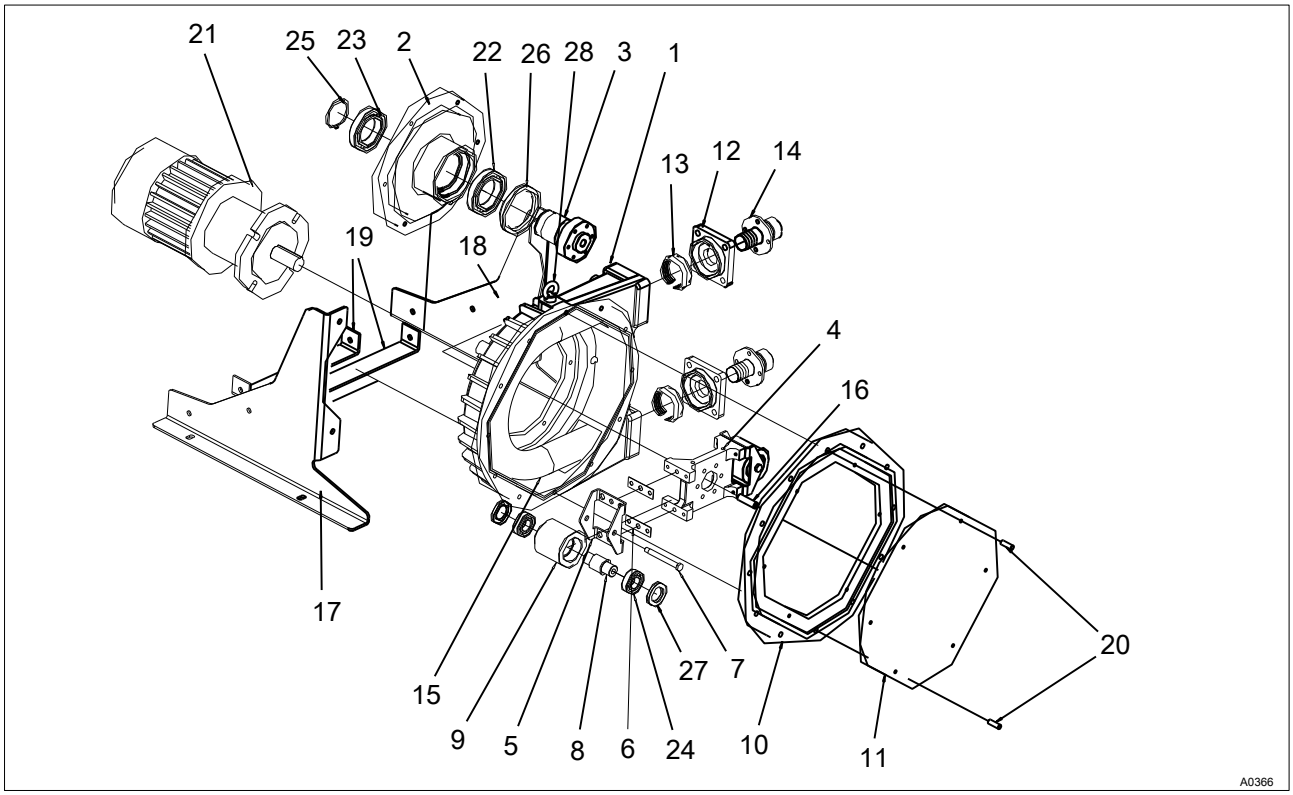


Fig. 11: Spare parts exploded view DFCa 050

DFCa 050 refer to Fig. 11				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
1	Pump housing	1	108.00.01	
2	Ball bearing housing	1	108.00.02	
3	Rotor shaft	1	108.00.03	
4	Rotor	1	108.00.04	
5	Roller holder	2	108.00.05	
6	Spacer plate		108.00.06	
7	Headless screw	2	108.00.07	
8	Roller shaft	2	108.00.08	
9	Roller	2	108.00.09	
10	Metal cover	1	108.00.10	
11	Front cover (polycarbonate)	1	108.00.39	
12	Pressure flange, standard	2	108.00.11	
13	Press ring	2	108.00.12	
14	Connection VA DN50	2	108.00.13	
	Connection ANSI DN50 VA	2	108.00.14	
	Connection PP DN50	2	108.00.16	

DFCa 050 refer to Fig. 11				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
	Connection ANSI PP DN50	2	108.00.17	
	Connection PVDF DN50	2	108.00.18	
	Connection ANSI PVDF DN50	2	108.00.19	
	Connection DIN 11851 NW50	2	108.00.15	
	Connection TRI-CLAMP	2		
15	Pump hose NR	1		1037199
	Pump hose NR-A	1		1037203
	Pump hose NBR	1		1037201
	Pump hose NBR-A	1		1037204
	Pump hose EPDM	1		1037202
	Pump hose HYPALON	1		1037205
16	Cap	1		
17	Base plate left	1	108.00.26	
	Base plate left, stainless steel	1	108.00.36	
18	Base plate right	1	108.00.27	
	Base plate right, stainless steel	1	108.00.37	
19	Base plate centre	2	108.00.28	
	Base plate centre, stainless steel	2	108.00.38	
20	Stay bolts	2		
21	Drive	1		
22	Ball bearings	1	108.00.29	
23	Ball bearings	1	108.00.30	
24	Ball bearings	4	108.00.31	
25	Rotor washer	1	108.00.32	
26	Seal	1	108.00.33	
27	Seal	4	108.00.34	
28	Lifting lug	1		
29	Drain plug FMP-50	3		
30	O-ring front cover	1	108.00.35	
31	Adapter rotor	2	108.00.44	

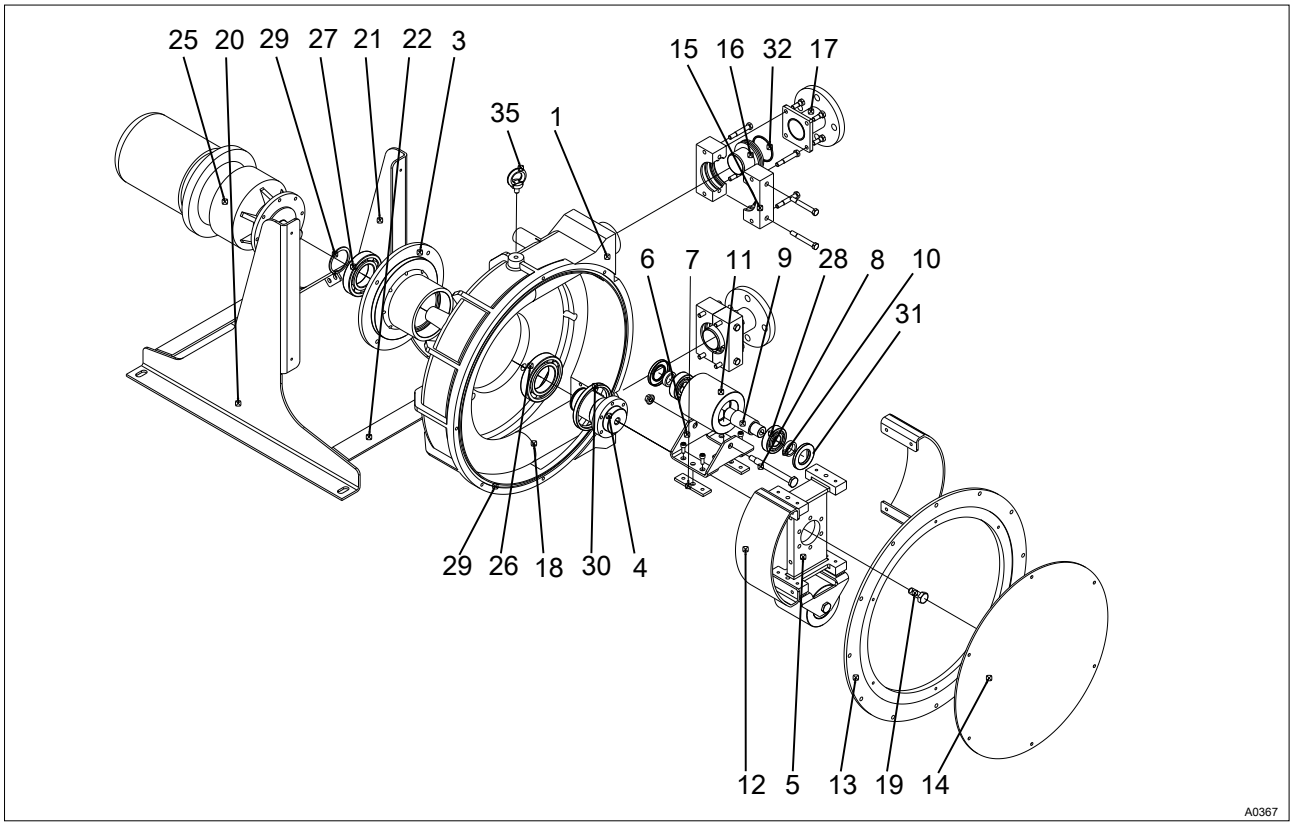


Fig. 12: Spare parts exploded view DFCa 060

DFCa 060 refer to Fig. 12				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
1	Pump housing	1	110.00.01	
3	Ball bearing housing	1	110.00.03	
4	Rotor shaft	1	110.00.04	
5	Rotor	1	110.00.05	
6	Roller holder	2	110.00.06	
7	Spacer plate 1 mm		110.00.07	
	Spacer plate 7 mm		110.00.55	
	Spacer plate 5mm		110.00.56	
8	Headless screw	2	110.00.08	
9	Roller shaft	2	110.00.09	
10	Spacer	4	110.00.10	
11	Roller	2	110.00.11	
12	Adapter rotor	2	110.00.12	
13	O-ring front cover	1	110.00.13	
14	Front cover	1	110.00.14	
15	Pressure flange, standard	2	110.00.15	

DFCa 060 refer to Fig. 12				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
16	Insert VA	2	110.00.16	
	Insert PP	2	110.00.46	
	Insert PVDF	2	110.00.47	
17	Connection DIN	2	110.00.17	
	Connection ANSI	2	110.00.41	
	Connection TRI-CLAMP	2	110.00.42	
	Connection DIN 11851	2	110.00.43	
	Connection DIN (HALAR)	2	110.00.44	
	Connection ANSI (HALAR)	2	110.00.45	
18	Pump hose NR	1		1037206
	Pump hose NR-A	1		1037210
	Pump hose NBR	1		1037208
	Pump hose NBR-A	1		1037211
	Pump hose EPDM	1		1037209
	Pump hose HYPALON	1		1037212
19	Cap	1	110.00.23	
20	Base plate left	1	110.00.37	
	Base plate left, stainless steel	1	110.00.48	
21	Base plate right	1	110.00.38	
	Base plate right, stainless steel	1	110.00.49	
22	Base plate centre, 110 mm	2	110.00.39	
	Base plate centre, 110 mm, stainless steel	2	110.00.50	
23	Base plate centre, 60 mm	2	110.00.40	
	Base plate centre, 60 mm, stainless steel	2	110.00.51	
24	Stay bolts	2	106.00.27	
25	Drive	1		
26	Ball bearings	1	110.00.26	
27	Ball bearings	1	110.00.27	
28	Ball bearings	4	110.00.28	
29	Flexible o-ring for shaft	1	110.00.29	
30	Seal	1	110.00.30	
31	Seal	4	110.00.31	
32	O-ring	1	110.00.32	
34	O-ring	2	110.00.33	
35	Lifting lug	1	110.00.34	

DFCa 060 refer to Fig. 12				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
36	Nut	2	110.00.35	
37	Nut	2	110.00.36	
38	Drain plug FMP	3	107.00.41	
39	Test valve	1	110.00.53	

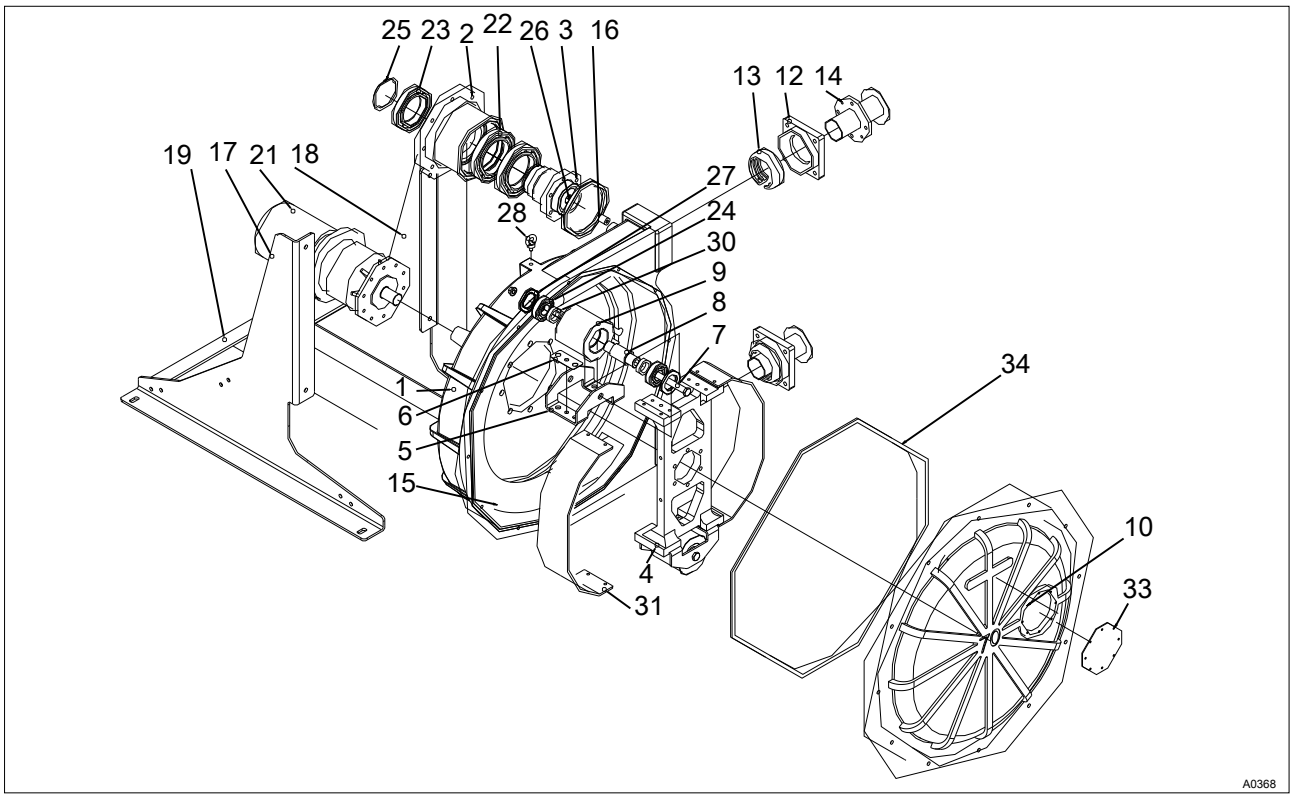


Fig. 13: Spare parts exploded view DFCa 070

DFCa 070 refer to Fig. 13				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
1	Pump housing	1	112.00.01	
2	Ball bearing housing	1	111.00.03	
3	Rotor shaft	1	111.00.04	
4	Rotor	1	112.00.05	
5	Roller holder	2	112.00.03	
6	Spacer plate		112.00.04	
7	Headless screw	2	112.00.05	
8	Roller shaft	2	112.00.06	
9	Roller	2	112.00.07	
10	Front cover	1	112.00.08	

DFCa 070 refer to Fig. 13				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
12	Pressure flange, standard	2	112.00.09	
13	Press ring	2	112.00.10	
14	Connection DIN VA	2	112.00.11	
	Connection ANSI VA	2	112.00.12	
	Connection DIN 11851 NW65	2	112.00.13	
	Connection DIN PP	2	112.00.14	
	Connection ANSI PP	2	112.00.15	
	Connection DIN PVDF	2	112.00.16	
	Connection ANSI PVDF	2	112.00.17	
	Connection TRI-CLAMP	2	112.00.43	
15	Pump hose NR	1		1037213
	Pump hose NR-A	1		1037216
	Pump hose NBR	1		1037214
	Pump hose NBR-A	1		1037217
	Pump hose EPDM	1		1037215
	Pump hose HYPALON	1		1037218
16	Cap	1	111.00.08	
17	Base plate left	1	112.00.24	
	Base plate left, stainless steel	1	112.00.36	
18	Base plate right	1	112.00.25	
	Base plate right, stainless steel	1	112.00.37	
19	Base plate centre	2	112.00.26	
	Base plate centre, stainless steel	2	112.00.38	
20	Stay bolts	2	112.00.44	
21	Drive	1		
22	Ball bearings	1	111.00.28	
23	Ball bearings	1	111.00.29	
24	Ball bearings	4	112.00.27	
25	Rotor washer	1	111.00.30	
26	Seal	1	111.00.31	
27	Seal	4	112.00.28	
28	Lifting lug	1	112.00.29	
29	Drain plug FMP-70	3	112.00.30	
30	Spacer	1	112.00.31	
31	Adapter rotor	2	112.00.32	
32	Inspection window (fixed version)	2	112.00.33	

DFCa 070 refer to Fig. 13				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
33	Inspection window (moveable version)	3	112.00.34	
34	O-ring front cover	1	112.00.35	

Lubricant				
Pos.	**Description**	**Quantity**	**Reference**	**Part number**
1	0.5 kg silicone grease	1		1037255
2	1.0 kg silicone grease	1		1037256

8 DFCa technical data

Type DFCa	Feed rate in l/U	P max. in bar	Flow rate at max. pressure in l/h	Rollers/ shoes Shoes	Hose interior ⌀ in mm	Solids max. ⌀ in mm	Weight without drive in kg	Connector
030	0.43	8	700	Rollers	28	7.0	62	1 1/4"
040	0.81	8	1550	Rollers	35	8.8	89	1 1/2"
050	1.46	8	2400	Rollers	40	10.0	140	DN 40
060	3.12	8	6000	Rollers	55	13.8	235	DN 50
070	8.05	8	12000	Rollers	65	16.3	440	DN 65
70D	15.83	4	25000	Rollers	65	16.3	850	DN 80

8.1 Dimensions DFCa 030

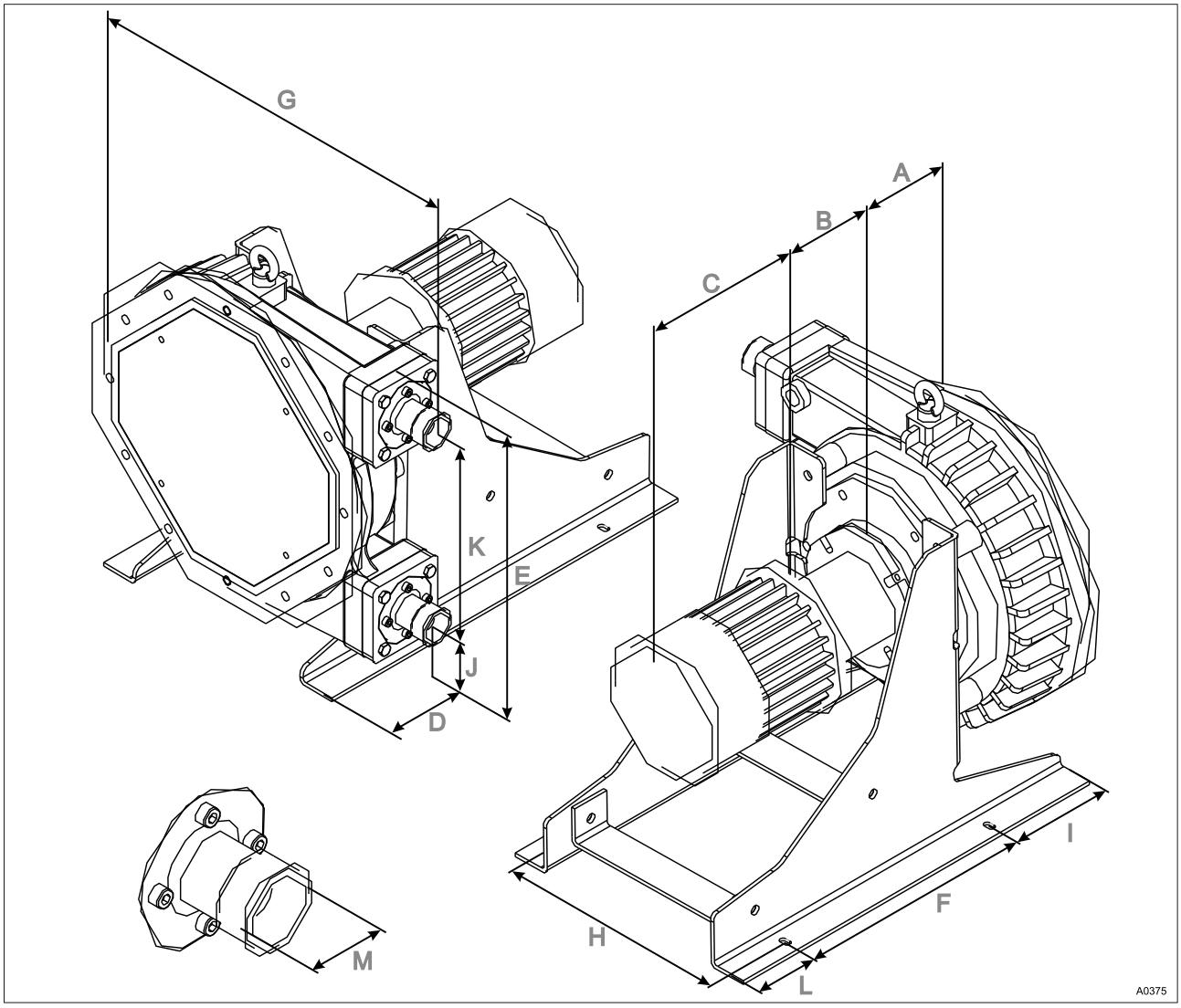


Fig. 14: Dimensions DFCa 030

A	127.5 mm	H	305 mm
B	*	I	160 mm
C	*	J	100 mm
D	60 mm	K	262 mm
E	425 mm	L	75 mm
F	305 mm	M	1 1/4"
G	471 mm	*	Dependent on selected drive

8.2 Dimensions DFCa 040

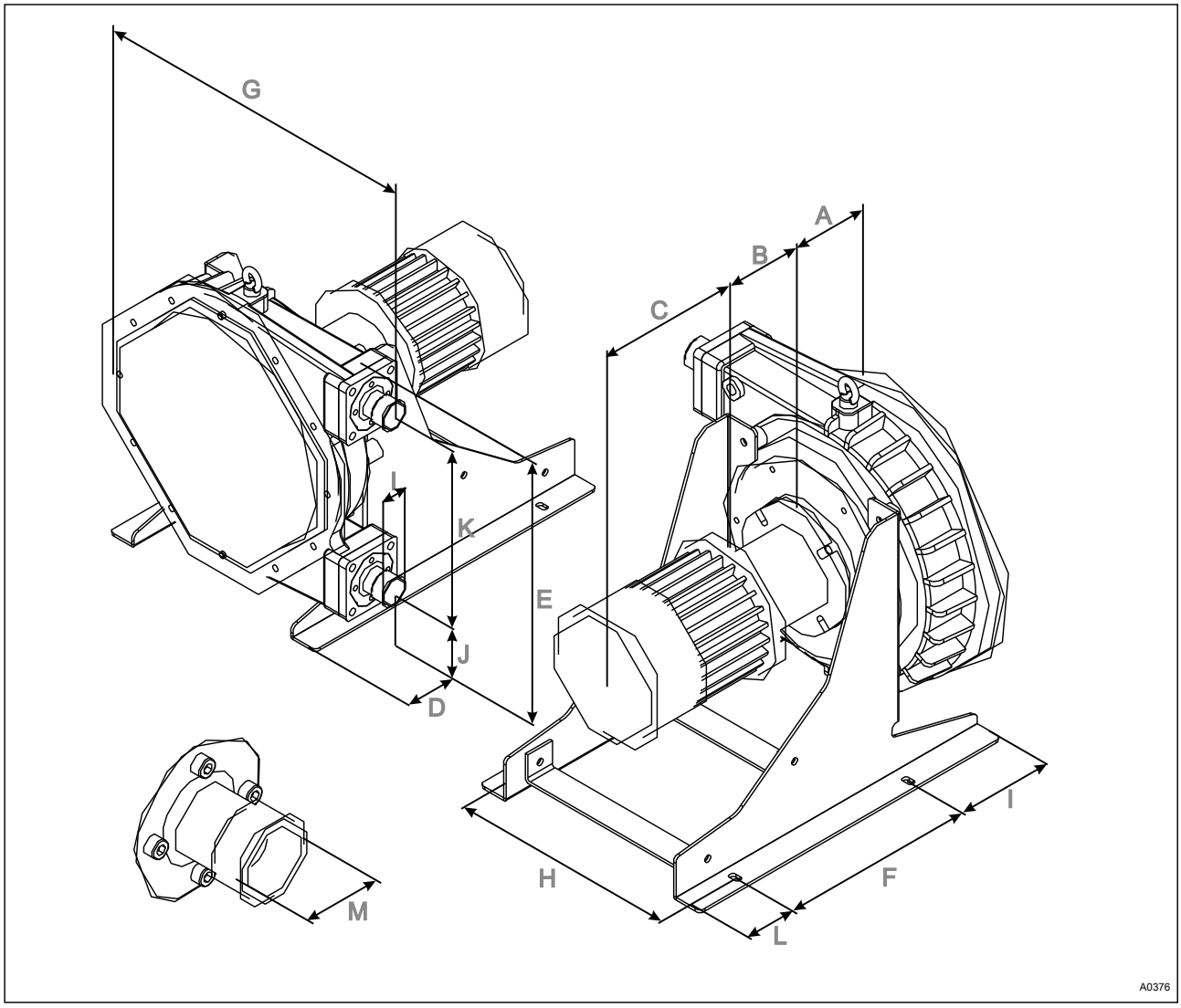


Fig. 15: Dimensions DFCa 040

A	135 mm	H	385 mm
B	*	I	170 mm
C	*	J	130 mm
D	70 mm	K	330 mm
E	613 mm	L	95 mm
F	345 mm	M	1 1/2"
G	552 mm	*	Dependent on selected drive

8.3 Dimensions DFCa 050

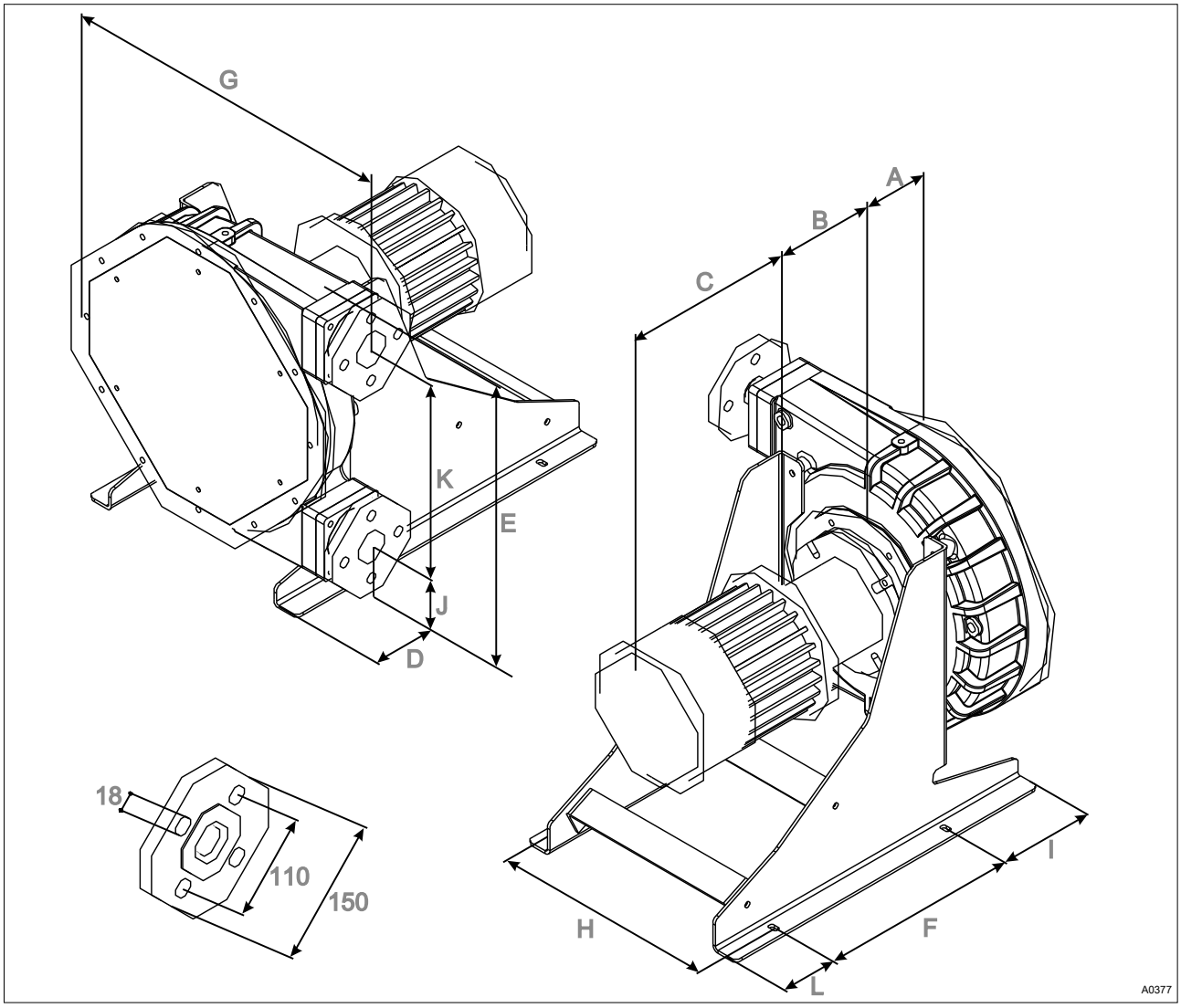


Fig. 16: Dimensions DFCa 050

A	151 mm
B	*
C	*
D	79 mm
E	645 mm
F	415 mm
G	633 mm
H	453 mm
I	200 mm
J	159 mm
K	412 mm
L	115 mm
*	Dependent on selected drive

8.4 Dimensions DFCa 060

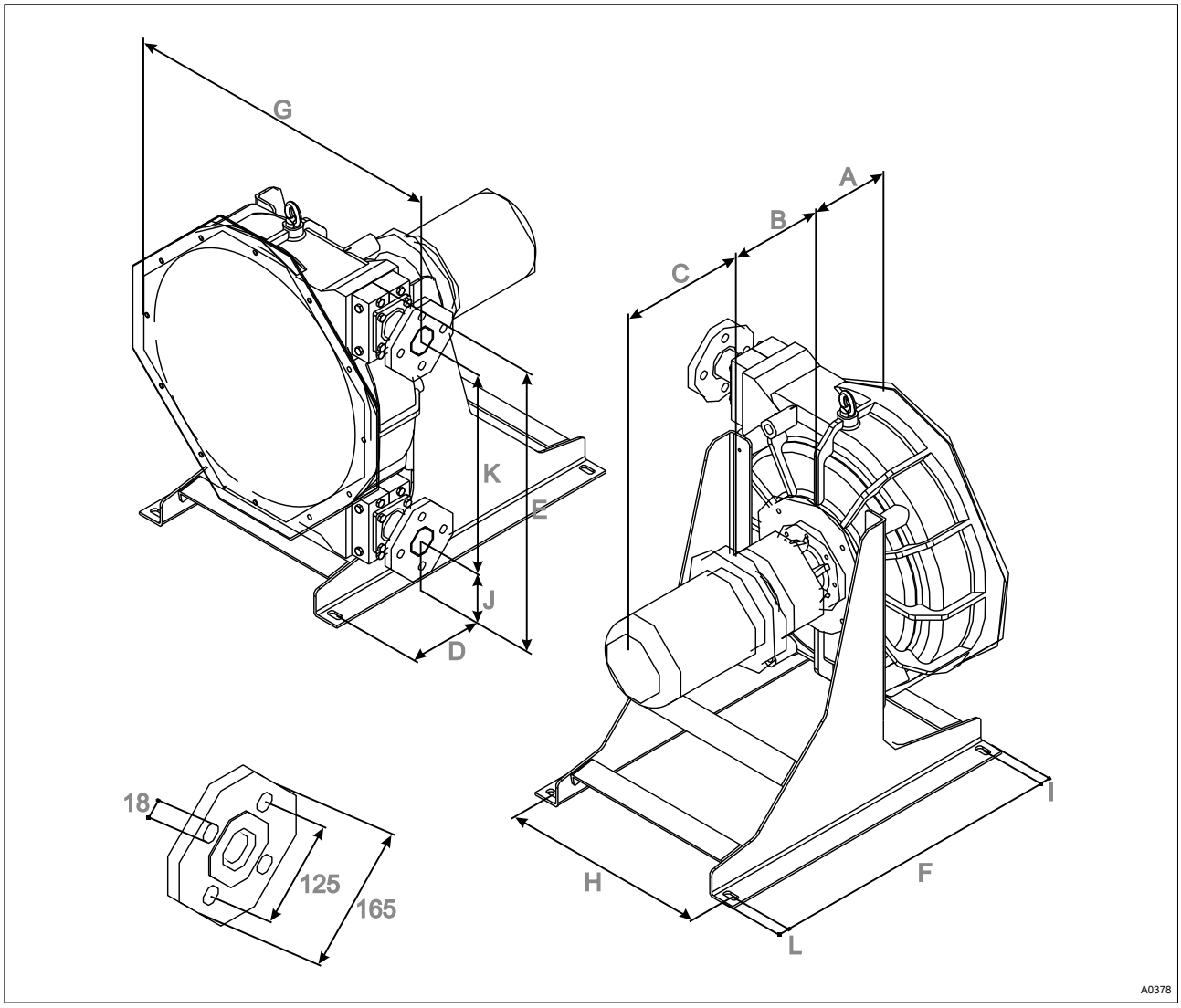


Fig. 17: Dimensions DFCa 060

A	215 mm
B	*
C	*
D	111 mm
E	805 mm
F	740 mm
G	735 mm
H	500 mm
I	25 mm
J	210 mm
K	510 mm
L	25 mm
*	Dependent on selected drive

8.5 Dimensions DFCa 070

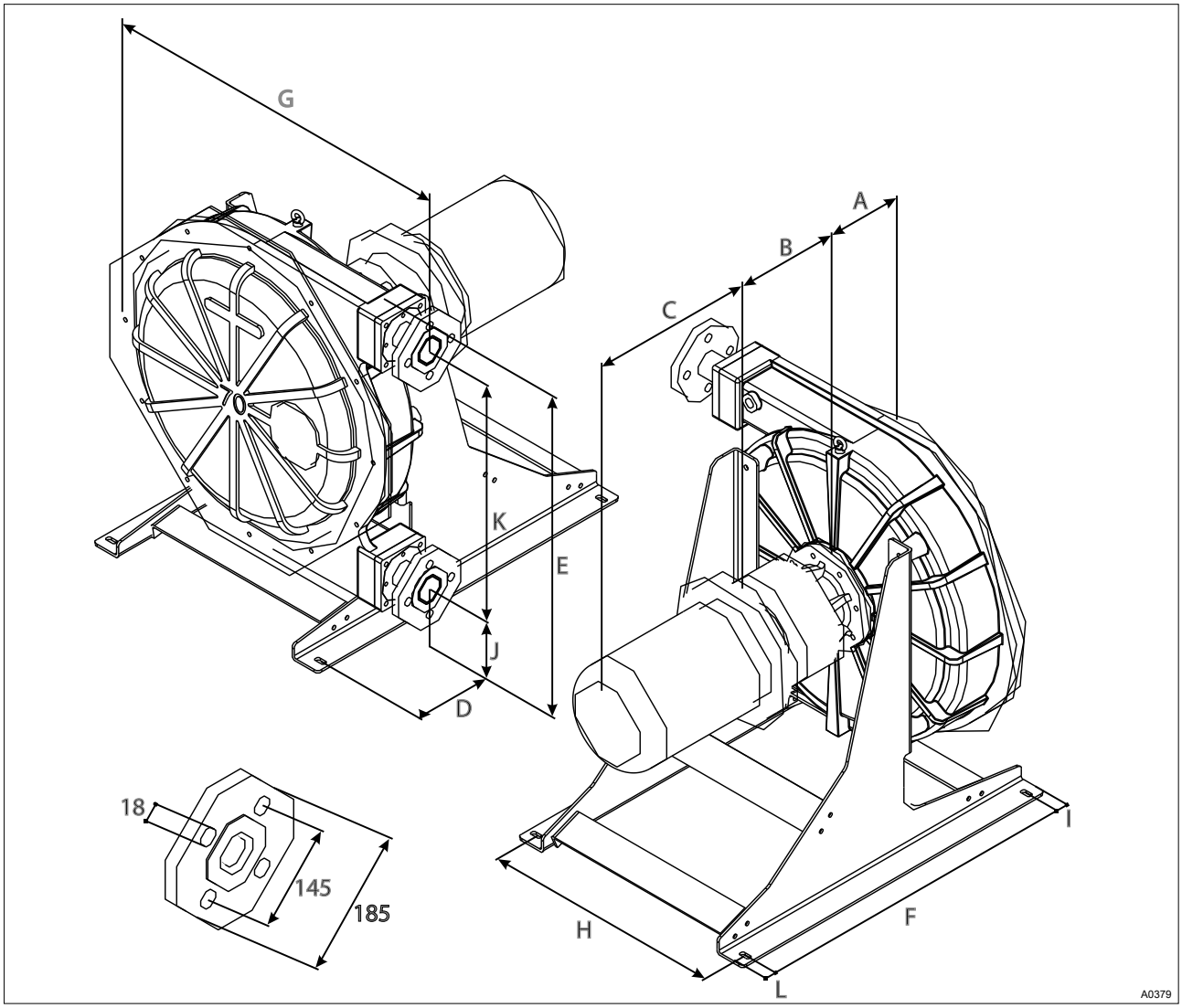


Fig. 18: Dimensions DFCa 070

A	215 mm
B	*
C	*
D	250 mm
E	1124 mm
F	1065 mm
G	1100 mm
H	790 mm
I	40 mm
J	240 mm
K	784 mm
L	40 mm
*	Dependent on selected drive

9 DFCa technical appendices

9.1 Declaration of Conformity

- Original -

EC Declaration of Conformity

We hereby declare,

ProMinent Dosiertechnik GmbH
Im Schuhmachergewann 5 - 11
DE - 69123 Heidelberg

that the following designated product complies with the pertinent fundamental safety and health requirements of the EC Directive in terms of its design and construction and in terms of the version marketed by us.
This declaration loses its validity in the event of a modification to the product not agreed with us.

Description of the product:	***Peristaltic pump DULCOflex***
Product type:	***DFAa..., DFBa..., DFCa..., DFDa...***
Serial no.:	***refer to nameplate on the device***
Pertinent EC Directives:	***EC Machinery Directive (2006/42/EC)*** ***EC EMC Directive (2004/108/EC)*** ***The protection targets laid out in the low-voltage regulations 2006/95/EG have, as shown in appendix I, Nr. 1.5.1 of the machine regulations 2006/42/EG been adhered to***
Applied harmonised standards in particular:	***EN ISO 12100-1, EN ISO 12100-2, EN 809, EN 60204-1, EN 60034-1, EN 60034-5, EN 60034-7, EN 61000-6-1, EN 61000-6-2***
Technical manuals were prepared by authorized documentation personnel:	***Norbert Berger*** ***Im Schuhmachergewann 5-11*** ***DE-69123 Heidelberg***
Date / Manufacturer - Signature :	*16.03.2010*
Details of the signatory:	*Joachim Schall, Head of Research and Development*

Fig. 19: EC Declaration of Conformity

10 Index