



# ZUWA-Zumpe GmbH

Pumps and Sprayers

## Operating Instructions Flushing and Filling Station



FLUSH PRO 30 • FLUSH PRO 60  
FLUSH PRO 90 • FLUSH PRO 90M

# Original Operating Instructions

## FLUSH PRO 30 · FLUSH PRO 60 FLUSH PRO 90 · FLUSH PRO 90M

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# 1. Declaration of conformity



The product complies with the requirements of the applicable European directives. The conformity was declared. The documents to which the declaration relates and the original declaration of conformity are available at the manufacturer.

## 2. Introduction

### Intended use

The filling unit is designed for filling, flushing and venting thermal solar systems and heat pump systems and also closed systems for heating and cooling with initial pressure below 4 bars. Any other use or extended use is considered to be improper. The manufacturer is not liable for any resulting damage.

### Notes on the documentation






This manual provides important information for a safe and correct operation of the filling stations FLUSH PRO 30 / 60 / 90 / 90M.

The manual is designed for qualified personnel who are trained and specialised in installing heating systems. Service and maintenance works must only be carried out by approved specialists.

### Subject to technical modifications

The continuous development and improvement of our products may cause minor modifications of technical data and illustrations.

## 2.1 Legend

	<b>Danger: immediate danger of death and severe injury</b>
	<b>Danger: danger of death from electric shock</b>
	<b>Danger: danger of scald burn</b>
	<b>Danger of environmental and material damage</b>
	<b>Information, note</b>

## 2.2 General safety instructions

**Store these instructions in such a way that they are accessible at all times for operating personnel!**

In addition to these operating instructions the following documents of related components and of the pumping media should be applied:

- technical specifications
- material safety data sheets
- operating instructions



The manufacturer shall not be held liable for damage resulting from non-adherence to the operating instructions.



**Danger**

### **Danger of death due to electric shock**

- > Prior to work on the pump, always disconnect the drive from the power supply.



**Danger**

### **Danger of death due to explosion**

- > Do not pump any liquids with a flash point of less than 55 ° C.
- > Do not pump petrol or solvents.



**Danger**

### **Danger of scald burn due to high media temperature**

- > Fill the system only when cold.

### **Danger of burn due to hot motor casing**

- > Do not block neither suction nor pressure hose more than 1 minute to avoid overheating of the motor.



**Warning**

### **Danger of injury due to splashing liquid**

- > Connect the hoses tightly to the pump.

**Material damage due to dry running**

- > Never allow the pump to run dry for more than 1 minute.

**Material damage due to tilting of the cart on uneven ground**

- > Operate the filling unit only on even ground.

**Danger of environmental damage due to hazardous pumped media**

- > Collect escaping pumped media and dispose of according to the locally applicable regulations.

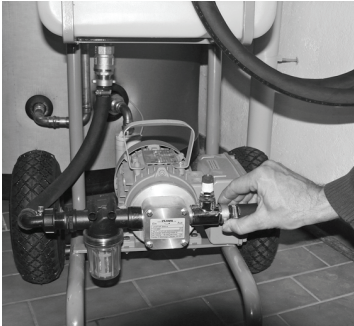
**Material damage due to improper storage**

- > Prior to extended periods of pump down time clean pump to avoid adhesions and damage to the impeller.
  - > Store pump under frost-protected conditions.
- 

### 3. Transportation and unpacking

- > After unpacking, immediately check the filling unit for completeness and damage.
- > Immediately report any transit damage to the supplying company.
- > Dispose of packaging material according to the respective local regulations.

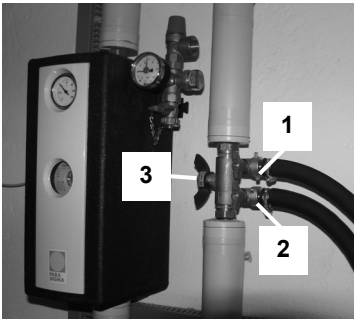
## 4. Mounting and commissioning



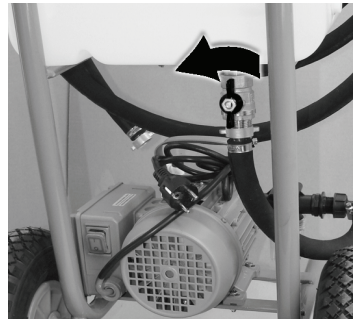
1. Connect filling hose to pump outlet.



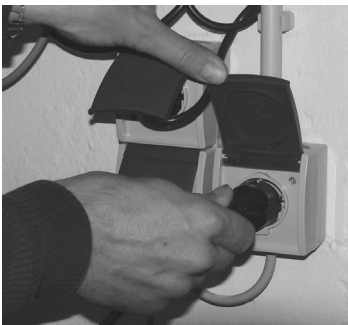
2. Connect return hose to tank.



3. Connect filling hose (1) and return hose (2) to the fill/vent valves and open valves. Close stop valve (3).



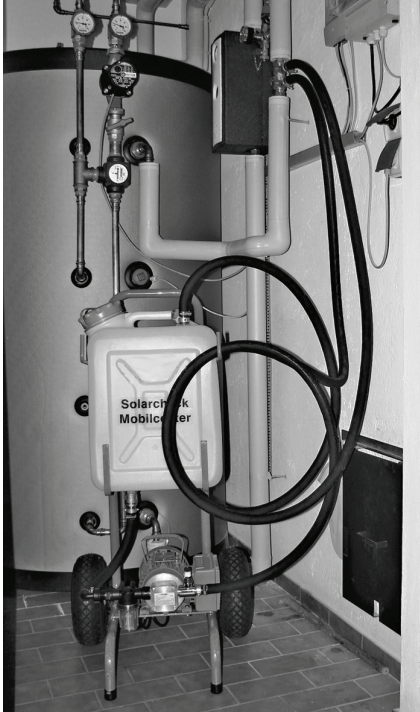
4. Fill tank and open ball valve.



5. Insert cable of pump motor into socket.



6. Switch on pump.



7. Open tank lid to ensure the circulation of the air.

**Caution:** Monitor fluid level in the tank and, if necessary, refill heat transfer fluid to prevent air entering the circuit.

8. Flush the circuit with the fluid.  
Check at the vision panel of the filter or through the tank opening if there are still air bubbles in the heat transfer fluid. Continue flushing until there is no air remaining in the fluid.



Other procedures of filling can be performed for different types of closed systems, including those procedures when direct filling from tanks with heat transfer fluid, supplied from the manufacturer, is required.

## 5. End of operation

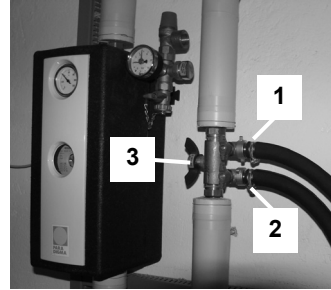
### After filling and flushing the system:

- > Switch off pump.
- > Close fill and vent valve (1+2) at the circuit.
- > Open stop valve (3) between fill and vent valve.

**Caution:** Collect escaping pumped media in a container.

The pressure that is generated between pump outlet and fill valve when flushing the pipe can be released by opening the filter at the pump inlet. It will be easier then to unscrew the filling hose from the fill valve.

- > Unscrew the filter casing and flush remaining liquid.
- > Unscrew the filling hose from the fill valve.
- > Unscrew return hose from vent valve.
- > Screw open hose ends together with the provided connecting piece in order to avoid dripping or escaping of fluid during transport.



Note that there is no filter at FLUSH PRO 90 and 90M.

## 6. Maintenance

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**Danger**

### Danger of death due to electric shock

- > Prior to work on the pump, always disconnect the drive from the power supply.



**Caution**

### Danger of environmental damage due to hazardous pumped media

- > Collect escaping pumped media and dispose of according to the locally applicable regulations.
- 

### 6.1 Connections

- > Check regularly if hose couplings are tight.

### 6.2 Cleaning the filter (FLUSH PRO 30 and 60 only)

The fine filter on the suction side of the pump filters out sold and weld residues. Check the vision panel at the filter regularly and clean the filter when you see dirt deposits on the strainer.

- > Screw off the filter casing, remove the strainer and clean both with rinsing water or compressed air.



## 6.3 Disassembling the pump

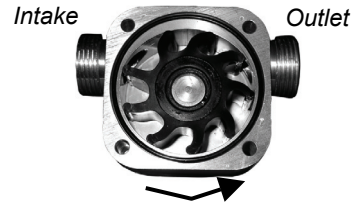
1. Disconnect line connections
2. Unscrew bolts on the pump side
3. Remove cover and side disc
4. Pull housing with impeller and rear side disc off the shaft

## 6.4 Replacing components

### Impeller

To change the impeller we recommend to use a special tool. See chapter 8, Accessories.

- > Push impeller out of the casing
- > Insert a new impeller. Observe direction of impeller wings (see adjacent illustration): Impeller wings must be bent to the opposite side of the rotating direction.



### Lateral discs

- > Turn around or replace

### Seals

- > Replace O-rings and push firmly into the recesses

Replacing shaft gasket:

1. Remove retaining ring with suitable pliers
2. Push out bearing and shaft gasket
3. Push in new shaft gasket and bearing
4. Insert retaining rings

## 6.5 Assembling the pump

Assembly of the pump is the reverse of disassembly – see exploded drawing.

1. Connect lateral disc with punched hole to the rear of the casing
2. Push casing with impeller and second lateral disc onto the shaft
3. Insert and tighten bolts
4. Attach lines



The lateral discs and O-rings must lie precisely in the recesses to ensure that the O-rings are not pinched.

## 7. Troubleshooting

<b>Fault</b>	<b>Possible cause</b>	<b>Remedy</b>
Pump does not take in liquid	Intake line is not leaktight	Seal connection or line
	Impeller worn or damaged	Replace impeller
	Suction line or foot valve is blocked	Clean suction line or foot valve
	Pressure line closed or blocked	Open fittings on the pressure side or clean pressure line
	Ball valve at the tank outlet closed or tank empty	Open ball valve or fill tank
Pump does not build up pressure	Impeller or lateral discs are worn	Replace impeller or lateral discs
	Filter clogged	Clean filter (see chapter 6, Maintenance)
	Ball valve at the tank outlet closed	Open ball valve
Liquid escapes from the pump	Shaft gasket or O-ring is missing or defective	Check whether part is in place and insert or replace defective component
Pump does not start	Impeller blocked	Fill pump with the medium to be pumped
	Impeller clogged up or macerated	Use an impeller appropriate to the medium
	Motor defective	Have motor checked by specialist personnel and have repaired if necessary

## 8. Accessories

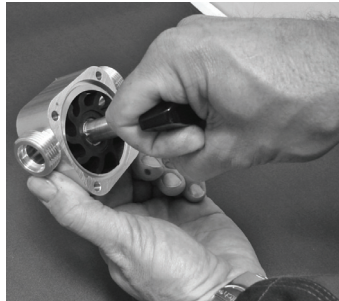


- Kit for filling ground loops including two 150 litres tanks, hose extension and additional stop valves

- Remote control with 10 metres cable
- Tool for changing the impeller  
A useful tool to install the impeller easily into the casing. Suitable for all ZUWA impellers. Order No.: 110 124 00

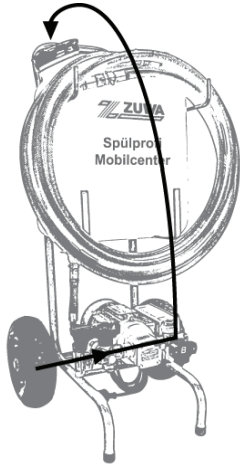


*tool for changing the impeller*



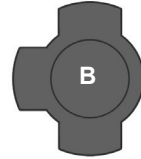
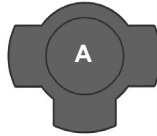
## 9. Setting of the Multifunctional Valves

The multifunctional valves at pump inlet and outlet provide two ports on each side of the pump. Thus enables the device to perform different functions and to adjust different lines for the fluid, which are described below:

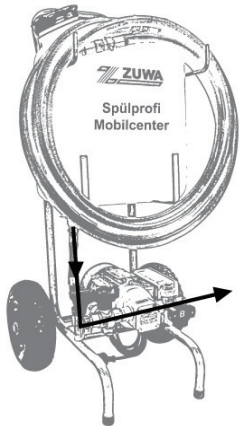


1. Prime fluid from external tanks\* and deliver it into the internal tank

Setting of the multifunctional valves:

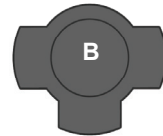


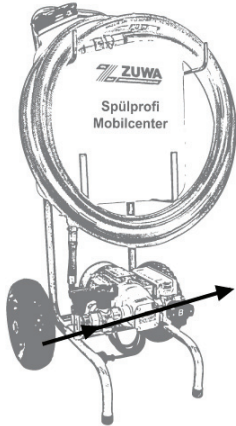
\* available as accessory (article No. 105012)



2. Prime fluid from internal tank and deliver it externally / into the installation

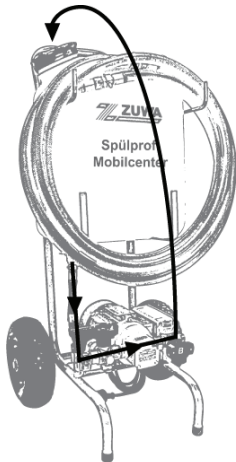
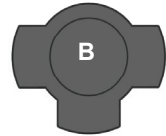
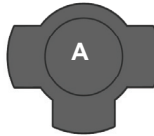
Setting of the multifunctional valves:





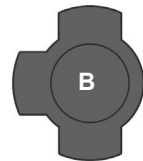
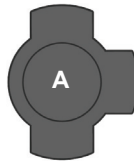
3. Prime fluid from external tanks and deliver it externally / into the installation

Setting of the multifunctional valves:



4. Circulate fluid between internal tank and pump (e. g. for mixing heat transfer fluid)

Setting of the multifunctional valves:



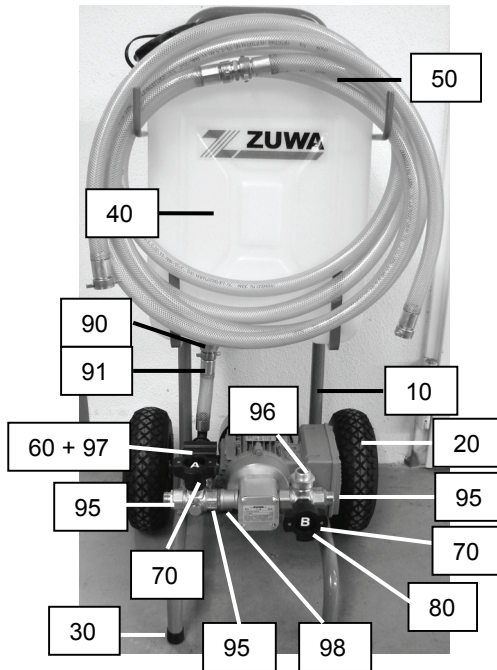
**!**  
**Caution**

Control the setting of the multifunctional valves before switching on the pump to prevent unforeseen leaking of fluid.

## 10. Technical data

<b>FLUSH PRO</b>	<b>30</b>	<b>60</b>	<b>90 90M</b>
<b>Voltage</b>	230 V		
<b>Frequency</b>	50 Hz		
<b>Maximum power consumption</b>	370 W	550 W	1100 W
<b>Maximum fluid temperature</b>	80 °C		
<b>Approved pumping media</b>	water, heat transfer medium		
<b>Maximum operating pressure</b>	5 bar		
<b>Maximum flow rate with heat transfer fluid</b>	27 L/min	54 L/min	81 L/min
<b>Diameter return hose / pressure hose</b>	$\frac{3}{4}$ / $\frac{3}{4}$ inch	1 / 1 inch	$1\frac{1}{4}$ / $1\frac{1}{4}$ inch
<b>Tank content</b>	30 L	30 L	55 L
<b>Dimensions (height / width / depth)</b>	76-100-110 x 490 x 510 cm		64 x 49 x 106 cm
<b>Weight without packaging (empty tank)</b>	25 kg	25 kg	39 kg
<b>External tanks content</b>	2 x 150 L		
<b>Dimensions external tanks</b>	74 x 50 x 70 cm		
<b>Motor protection class</b>	IP 55		

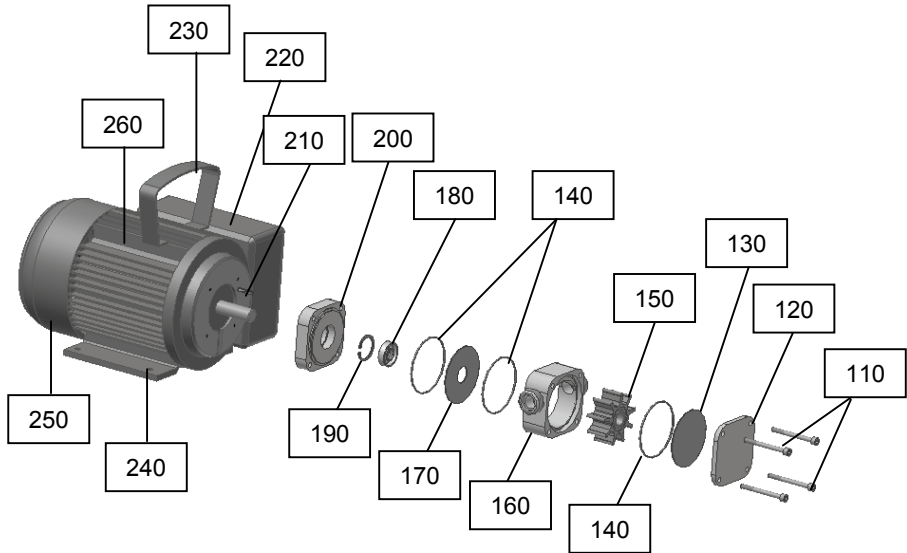
## 11.Parts list Flush Pro 30 und 60



Pos.:	Part / Designation	Code	Number
10	Chassis	13405110BT	1
20	Inflatable wheel	80120	2
30	Rubber pads	80543	2
40	Replacement tank for Solarcheck Mobilcenter	80107	1
50	Hose extension 3 m PVC 19 x 3.5 complete	131124	2
60	Filter pressure line 3/4"	8105042	1
70	Multifunctional valve 3/4"	80280	2
80	Drain valve 3/8" nickle plated pivotable	132232	1
90	Hose connection 19 R 3/4", grommet 3/4"	131213SA	1
91	Low pressure nozzle	131335	7
92	Bow-shaped hose connection 3/4" ext. thread	8011202	1
93	O-ring 26-3	80011	2
94	Reducer plug 1" int. x 3/4" ext. thread PVC	8059203	1
95	Threaded nipple brass 3/4" x 3/4" ext. thread	131215	3
96	Threaded nipple brass 1" int. x 3/4" ext. thread	131062	1
97	Screw thread brass	80069	1

# ZUWA FLUSH PRO

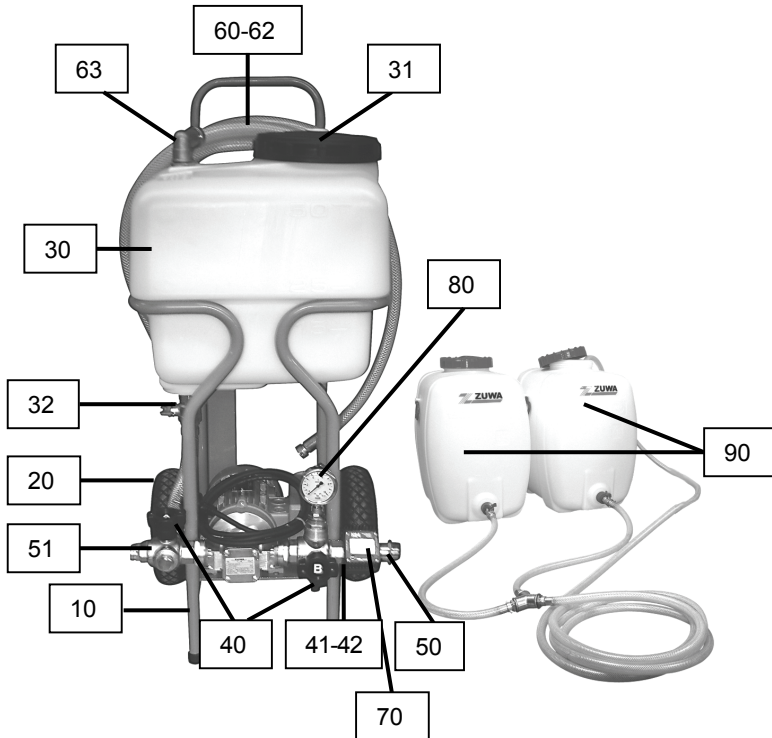
Pos.:	Part / Designation	Code	Number
98	Screw socket R 3/4" int. thread	131246	1
99	Threaded nipple brass 3/4" x 3/4" ext. thread	131215	1



Pos.:	Part / Designation	Code	Number
110	Hexagon screw M5 x 55	70031	4
120	Front plate	11012002	1
130	Lateral disc – stainless steel	11012009	1
140	O-ring 56-2 NBR	80003	3
150	Impeller Perbunan large / Polyamid bush	11012912	1
160	Casing UNISTAR-B connection in/out 3/4"	110130081	1
170	Lateral disc stainless steel with hole	11012709	1
180	Rotary shaft seal NBR 14 x 26 x 7	80537	1
190	Locking ring I 26 x 1,2	70284	1
200	Rear plate	12000502	1
210	Fitting key A 3 x 3 x 36	70317	1
220	Control box	80628	1
230	Handle for CEG motor	14000202	1
240	Motor base	FUSS00071	1
250	Fan cover for CEG motor	80621	1
260	Motor 230 V; 0,37 kW; 2800 rpm	80606MF	1



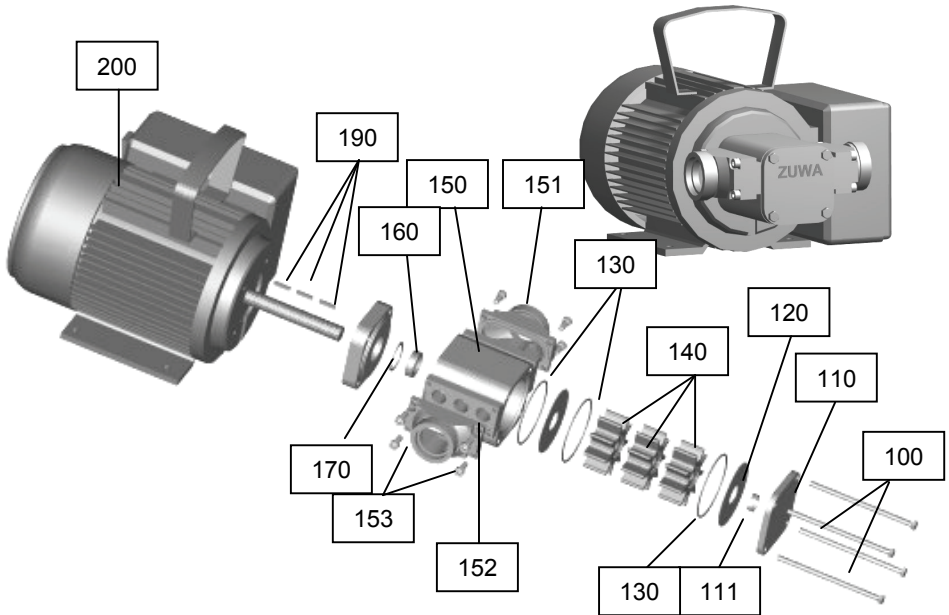
## 12.Parts list Flush Pro 90 und 90M



Pos.	Part / Designation	Code	Number
10	Chassis	13206002BT	1
20	Inflatable wheel	80120	2
30	Tank 55 L	13206001	1
31	Sieve for tank 55 L	80460	1
32	Ball valve 1" x 1" ext. thread	80584	1
40	Multifunctional valve 1"	80281	2
41	Reducer plug 1/2" x 3/8"	132233	1
42	Drain valve 3/8"	132232	1
50	Threaded nipple 1 1/4" int. x 1" ext. thread	80560	5
51	Threaded nipple 1" ext. x 1" ext. thread	131052	4
60	Hose PVC 25 x 4 transparent, 2 x 3 m	30024	1
61	Hose connection 25 R 1"	131212	7
62	Low pressure nozzle fastening H25-34.5	131332	7
63	Elbow 90° brass	80645	1

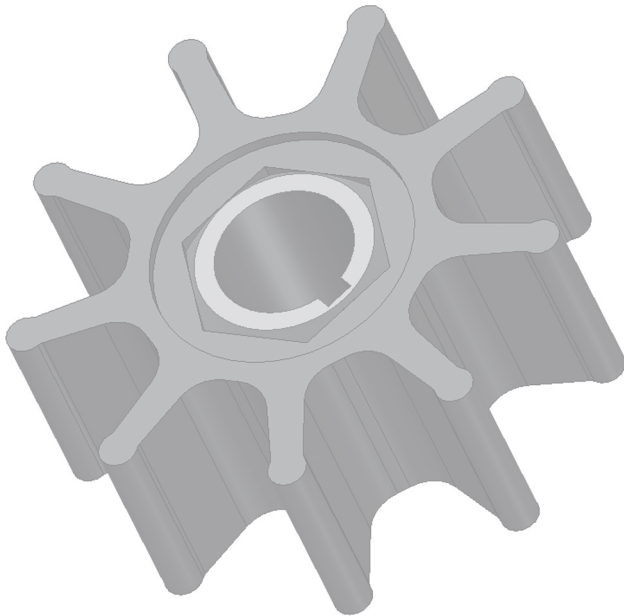
# ZUWA FLUSH PRO

Pos.	Part / Designation	Code	Number
70	Flow meter K 24	13181N	1
80	Pressure gauge glycerine filled, 0 – 10 bar (FLUSH PRO 90M only)	900040	1
90	Kit for filling large loops including two 150 litres tanks, hose extension and additional stop valves (optional)	105012	1



Pos.:	Part / Designation	Code	Number
100	Hexagon screw M5 x 55	70037	4
110	Front plate	11012002GL	1
111	Slide bush	141606	1
130	Lateral disc – stainless steel with hole	11012709	1
140	O-ring 56-2 NBR	80003	3
150	Impeller Perbunan with polyamid bush	11012909	3
150	Spare parts: Impeller Perbunan	11012909	3
160	Casing UNISTAR-C	11013601	1
151	Flange 1 ¼" ext. thread	11013602	2
152	O-ring 50-2 NBR	80005	2
153	Socket head cap screw M5 x 12	70329	8

<b>Pos.:</b>	<b>Part / Designation</b>	<b>Code</b>	<b>Number</b>
160	Rotary shaft seal NBR 14 x 26 x 7	80537	1
170	Locking ring I 26 x 1,2	70284	1
180	Rear plate	12000502	1
190	Fitting key A 3 x 3 x 36	70315	1
200	Motor 230 V; 1,1 kW; 2800 rpm UNISTAR-C	5551MK6011	1
200	Motor 400 V; 1,1 kW; 2800 rpm UNISTAR-C	7151MK6011	1
201	Control box	806362	1
202	Fan cover	806361	1
240	Motor base	806366	2



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