DW

Dewatering pumps

50 Hz

be
think
innovate

GRUNDFOS

Table of contents

1. Introduction

This data booklet deals with Grundfos dewatering pumps, type DW.

TM01 3492 4298

Fig. 1 DW pumps for free-standing installation

The pumps are specially designed to meet the highest demands in construction, building services and industrial applications where there is a need for pumping dirty water with a high content of abrasive particles.

In order to achieve optimum performance and a very high reliability, the pumps are made of high-quality materials that provide maximum resistance to wear. For further details on construction, see pages 11 to 13.

Applications

The pumps are typically used for the transfer of the following liquids:

- drainage water
- surface water
- groundwater
- water containing abrasives.

The pumps are suitable for operation in harsh environments, such as

- construction building sites
- basement garages
- drainage pits
- low-lying rainwater catchment areas
- power stations
- steel works
- ship yards
- onboard ships
- fish ponds
- process industry, etc.

Pumped liquids

The pumps are specifically designed for pumping dirty water with a high content of abrasives, such as drill cuttings and sand.

Particle size

The pumps can handle all solids that can pass through the inlet strainer:

Pump type	Number of holes	Hole size [mm]
DW.50.08	3 x 36	∅8
DW.50.07 DW.50.09	3 x 40	∅8
DW.65.27 DW.65.39 DW.100.39	1 x 48	7 x 30
DW.100.66	2 x 48	
DW.100.110 DW.150.110	3 x 55	10 x 30
DW.100.200 DW.150.200	4 x 55	10 x 30

Liquid temperature

0 to 40 °C.

pH value

5 to 8.

Density of pumped liquid

Maximum 1100 kg/m^3.

Constructional features

Automatic operation

The pumps are available with integrated level control which starts the pump automatically when the built-in electrodes come into contact with water, and it stops the pump when the water level has fallen below the inlet strainer.

High reliability

High-grade materials

The pumps are made entirely of high-grade non-corrosive materials.

Heavy-duty ball bearings

All ball bearings are greased for life.

Double shaft seal system

The pumps have a double shaft seal system in an oil chamber which ensures trouble-free operation.

Integrated cooling jacket

An integrated cooling jacket helps keep the motor temperature low.

Overload protection

The pumps incorporate overload protection.

Integrated thermal protection

The motors incorporate thermal switches in the stator windings.

Versatility

Suitable for many applications

The pumps are suitable for a wide range of applications. See section *Applications* on page 3.

Outlet connection

To meet customer demands, the pump outlet is available with the following connection types:

- hose connection
- Storz coupling
- threaded connection.

Portable compact design

The pumps have a compact design and a low weight. Furthermore, for most of the product variants, one cable is connected to the pump, which means that no additional sensor cable is required.

Maintaining the performance

To maintain the high performance in case of wear, the diffuser can easily be adjusted against the impeller with the staybolts.

Service-friendly design

Wear parts are easy to replace without special tools.

2. Identification

Type key

Code	Example	DW	.50	.09	.A	3	.H
DW	Type range						
50	Nominal diameter of outlet port [mm]						
09	Power output P2/100 [W] 09 = 0.9 kW						
A [ ]	Operation With automatic level control For manual operation						
1 3	Version Single-phase Three-phase						
H	High head						

Nameplate

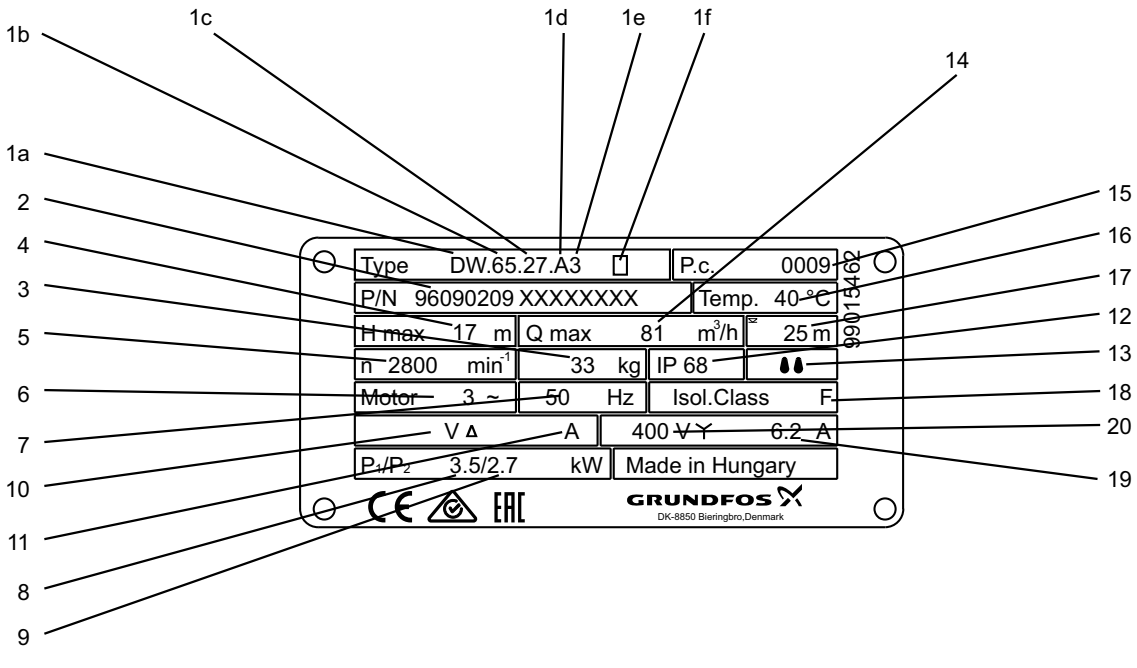


Fig. 2 DW nameplate

Pos.	Description
1a	Type designation
1b	Nominal diameter of outlet port
1c	Rated shaft power
1d	Code, level control
1e	Number of phases
1f	Code, high-head version
2	Product number
3	Weight
4	Maximum head
5	Rated speed
6	Number of phases
7	Frequency
8	Rated power input

Pos.	Description
9	Rated shaft power
10	Rated voltage, Δ
11	Rated current, Δ
12	Enclosure class to IEC
13	Enclosure class to CEE
14	Maximum flow rate
15	Production year and week
16	Maximum liquid temperature
17	Maximum installation depth
18	Insulation class
19	Rated current, Y
20	Rated voltage, Y

3. Selection of pump

Ordering a pump

The complete range of DW pumps, including product numbers, can be found in section *Product range* on pages 8 to 10.

When ordering a pump, you have to take the following aspects into consideration:

Required flow and head

Maximum flow and maximum head can be found in section *Performance curves and technical data* on pages 25 to 27.

Particle size

The maximum size of particles that the DW pumps can handle can be found in section *Particle size* on page 3.

Installation depth

The maximum installation depth can be found in section *Performance curves and technical data* on pages 25 to 27.

Operation type

The pumps are available with automatic level control or for manual operation.

Pumps with automatic level control can be identified by the letter "A" in the pump type key.

Pumps without automatic level control, but which are prepared for an external control box, can be fitted with a float switch to enable automatic level control.

Outlet connection type

The following outlet connections are available:

- hose connection
- Storz coupling
- threaded connection.

Alternative power cables

As standard, the cables are 20 metres long.

Other cable lengths are available on request.

The number and dimension of cables depend on the motor size. All cables are rubber cables type H07RN-F.

Cable size [mm^2]	Outer cable diameter [mm]	Schuko plug
3 x 1.5	9.9	No
4 x 1.5	11.1	No
3 x 1.5	9.9	Yes
4 x 2.5	13.3	No
4 x 10	23.5	No

Plug type

The following plug types are available:

- Schuko plug
- CEE plug
- no plug.

Accessories

Depending on the installation type, accessories may be required. See section *Accessories* on pages 28 and 29 for selection of the correct accessories.

Note: Accessories are not fitted from factory.

4. Performance range

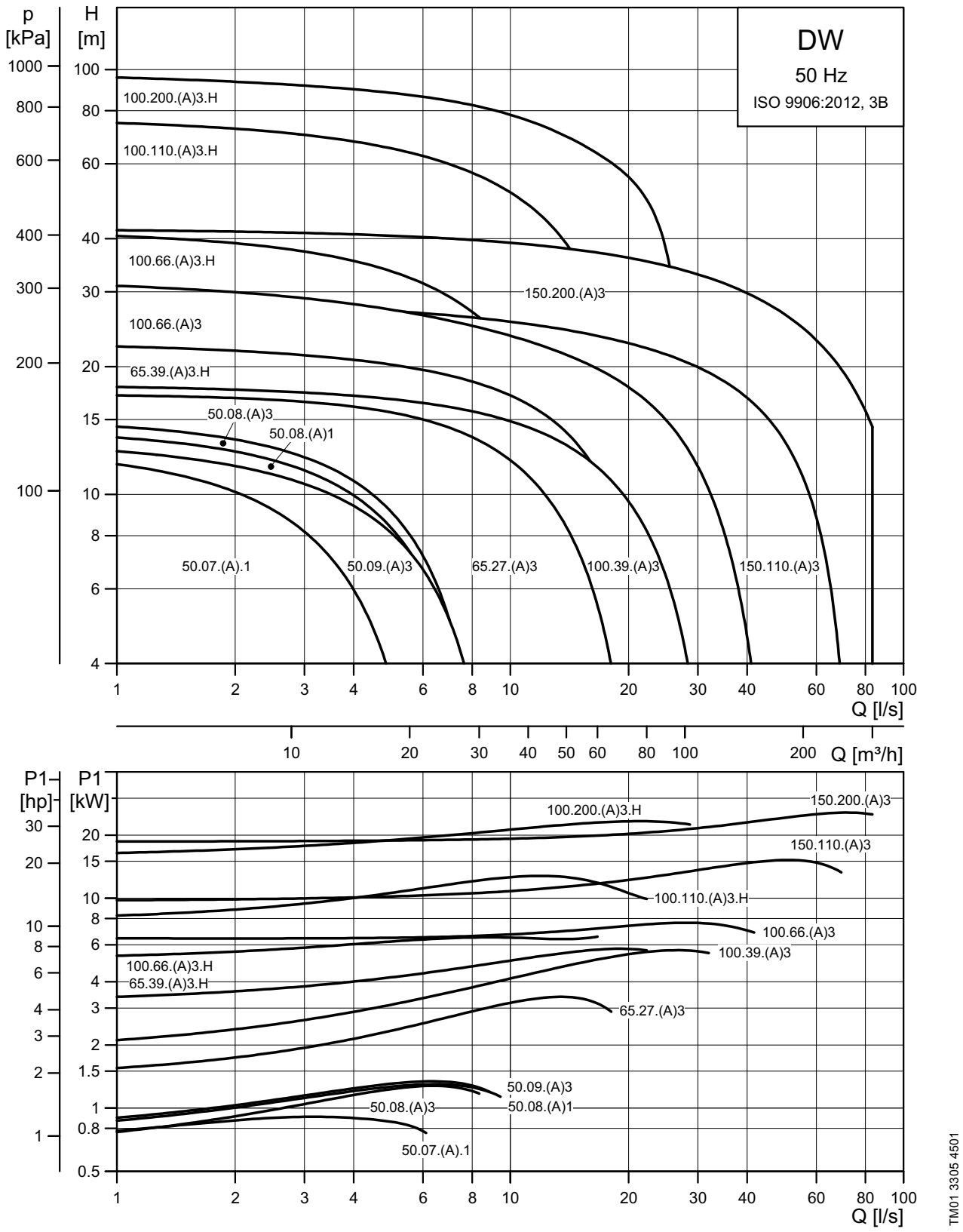


Fig. 3 Performance range

5. Product range

Product numbers

Pumps with aluminium pump sleeve

Pump type	Voltage [V]	Starting method	Electrical connection				Outlet connection			Product number
			No plug	Schuko plug	Motor starter*	Prepared for external control box	Hose	Threaded	Storz coupling half	
Single-phase pumps										
DW.50.07.1	1 x 230	DOL	●					●		96090204
DW.50.07.A1	1 x 230	DOL	●					●		96090205
DW.50.07.1	1 x 230	DOL		●					●	96090238
DW.50.07.A1	1 x 230	DOL		●					●	96090239
DW.50.07.1	1 x 230	DOL		●			●			96090299
Three-phase pumps										
DW.50.09.3	3 x 400	DOL	●					●		96090206
DW.50.09.A3	3 x 400	DOL	●					●		96090207
DW.50.09.3	3 x 400	DOL			●				●	96090253
DW.50.09.A3	3 x 400	DOL			●				●	96090254
DW.50.09.3	3 x 400	DOL			●		●			96090300
DW.50.09.3	3 x 230	DOL	●				●			96090276
DW.50.09.A3	3 x 230	DOL	●				●			96090277
DW.65.27.3	3 x 400	DOL	●					●		96090208
DW.65.27.A3	3 x 400	DOL	●					●		96090209
DW.65.27.3	3 x 400	DOL			●				●	96090240
DW.65.27.A3	3 x 400	DOL			●				●	96090255
DW.65.27.3	3 x 400	DOL			●		●			96090301
DW.65.27.3	3 x 230	DOL	●				●			96090278
DW.65.27.A3	3 x 230	DOL	●				●			96090279
DW.65.39.3.H	3 x 400	DOL	●					●		96090210
DW.65.39.A3.H	3 x 400	DOL	●					●		96090211
DW.65.39.3.H	3 x 400	DOL			●				●	96090241
DW.65.39.A3.H	3 x 400	DOL			●				●	96090256
DW.65.39.3.H	3 x 400	DOL			●		●			96090302
DW.65.39.3.H	3 x 230	DOL	●				●			96090280
DW.65.39.A3.H	3 x 230	DOL	●				●			96090281
DW.100.39.3	3 x 400	DOL	●					●		96090212
DW.100.39.A3	3 x 400	DOL	●					●		96090213
DW.100.39.3	3 x 400	DOL			●				●	96090242
DW.100.39.3	3 x 400	DOL			●		●			96090298
DW.100.39.A3	3 x 400	DOL			●				●	96090257
DW.100.39.3	3 x 230	DOL	●				●			96090282
DW.100.39.A3	3 x 230	DOL	●				●			96090283
DW.100.66.3	3 x 400	DOL	●					●		96090214
DW.100.66.A3	3 x 400	DOL	●					●		96090215
DW.100.66.3.H	3 x 400	DOL	●					●		96090232
DW.100.66.A3.H	3 x 400	DOL	●					●		96090233
DW.100.66.3.H	3 x 400	DOL			●				●	96090243
DW.100.66.3	3 x 400	DOL			●				●	96090244
DW.100.66.A3	3 x 400	DOL			●				●	96090259
DW.100.66.3.H	3 x 400	DOL			●		●			96090303
DW.100.66.3	3 x 400	DOL			●		●			96090304
DW.100.66.A3.H	3 x 400	DOL			●				●	96090258
DW.100.66.3	3 x 230	DOL	●				●			96090284
DW.100.66.A3	3 x 230	DOL	●				●			96090285
DW.100.66.3.H	3 x 230	DOL	●				●			96090286
DW.100.66.3A.H	3 x 230	DOL	●				●			96090287
DW.100.110.3.H	3 x 400	DOL	●					●		96090216
DW.100.110.A3.H	3 x 400	DOL	●					●		96090217
DW.100.110.3.H	3 x 400	Y/D	●					●		96090220
DW.100.110.A3.H	3 x 400	Y/D	●					●		96090221

Pump type	Voltage [V]	Starting method	Electrical connection				Outlet connection			Product number
			No plug	Schuko plug	Motor starter*	Prepared for external control box	Hose	Threaded	Storz coupling half	
DW.100.110.3.H	3 x 400	DOL			•				•	96090245
DW.100.110.3.H	3 x 400	Y/D	•			•			•	96090247
DW.100.110.A3.H	3 x 400	DOL			•				•	96090260
DW.100.110.3.H	3 x 400	DOL			•		•			90090305
DW.100.110.3.H	3 x 400	DOL	•			•		•		96090324
DW.100.200.3.H	3 x 400	DOL	•					•		96090224
DW.100.200.A3.H	3 x 400	DOL	•					•		96090225
DW.100.200.3.H	3 x 400	Y/D	•					•		96090228
DW.100.200.A3.H	3 x 400	Y/D	•					•		96090229
DW.100.200.3.H	3 x 400	DOL	•			•			•	96090249
DW.100.200.3.H	3 x 400	Y/D	•			•			•	96090251
DW.100.200.3.H	3 x 400	DOL	•						•	96090268
DW.100.200.3.H	3 x 400	DOL	•			•	•			96090306
DW.100.200.3.H	3 x 400	Y/D	•						•	96090270
DW.150.110.3	3 x 400	DOL	•					•		96090218
DW.150.110.A3	3 x 400	DOL	•					•		96090219
DW.150.110.3	3 x 400	Y/D	•					•		96090222
DW.150.110.A3	3 x 400	Y/D	•					•		96090223
DW.150.110.3	3 x 400	DOL			•				•	96090246
DW.150.110.3	3 x 400	Y/D	•			•			•	96090248
DW.150.110.A3	3 x 400	DOL			•				•	96090261
DW.150.110.3	3 x 400	DOL	•			•		•		96090273
DW.150.110.3	3 x 400	DOL			•		•			96090307
DW.150.200.3	3 x 400	DOL	•					•		96090226
DW.150.200.A3	3 x 400	DOL	•					•		96090227
DW.150.200.3	3 x 400	Y/D	•					•		96090230
DW.150.200.A3	3 x 400	Y/D	•					•		96090231
DW.150.200.3	3 x 400	DOL	•			•			•	96090250
DW.150.200.3	3 x 400	Y/D	•			•			•	96090252
DW.150.200.3	3 x 400	DOL	•						•	96090269
DW.150.200.3	3 x 400	DOL	•			•	•			96090308
DW.150.200.3	3 x 400	Y/D	•						•	96090271

* With motor protection, CEE plug, phase sequence tester and phase inverter.

Pumps with polypropylene pump sleeve

All DW.50.08 pumps are for direct-on-line starting.

Pump type	Voltage [V]	Electrical connection				Outlet connection			Product number
		No plug	Schuko plug	Motor starter*	Prepared for external control box	Hose	Threaded	Storz coupling half	
Single-phase pumps									
DW.50.08.1	1 x 230		•					•	96090200
DW.50.08.A1	1 x 230		•					•	96090201
DW.50.08.1	1 x 230	•					•		96090234
DW.50.08.A1	1 x 230	•					•		96090235
DW.50.08.1	1 x 230		•			•			96090296
DW.50.08.A1	1 x 230		•			•			96090297
Three-phase pumps									
DW.50.08.3	3 x 400			•				•	96090202
DW.50.08.A3	3 x 400			•				•	96090203
DW.50.08.3	3 x 400	•					•		96090236
DW.50.08.A3	3 x 400	•					•		96090237
DW.50.08.3	3 x 230	•				•			96090274
DW.50.08.A3	3 x 230	•				•			96090275

* With motor protection, CEE plug, phase sequence tester and phase inverter.

Note: Pumps without integrated motor starter for direct-on-line or star-delta starting must be connected to an external motor protection to protect the motor against overcurrent and overload.

Pumps without automatic level control, but which are prepared for an external control box, can be fitted with a float switch to enable automatic level control.

Three-phase pumps with CEE plug are available with or without phase inverter. Single-phase pumps with plug have a Schuko plug.

6. Construction

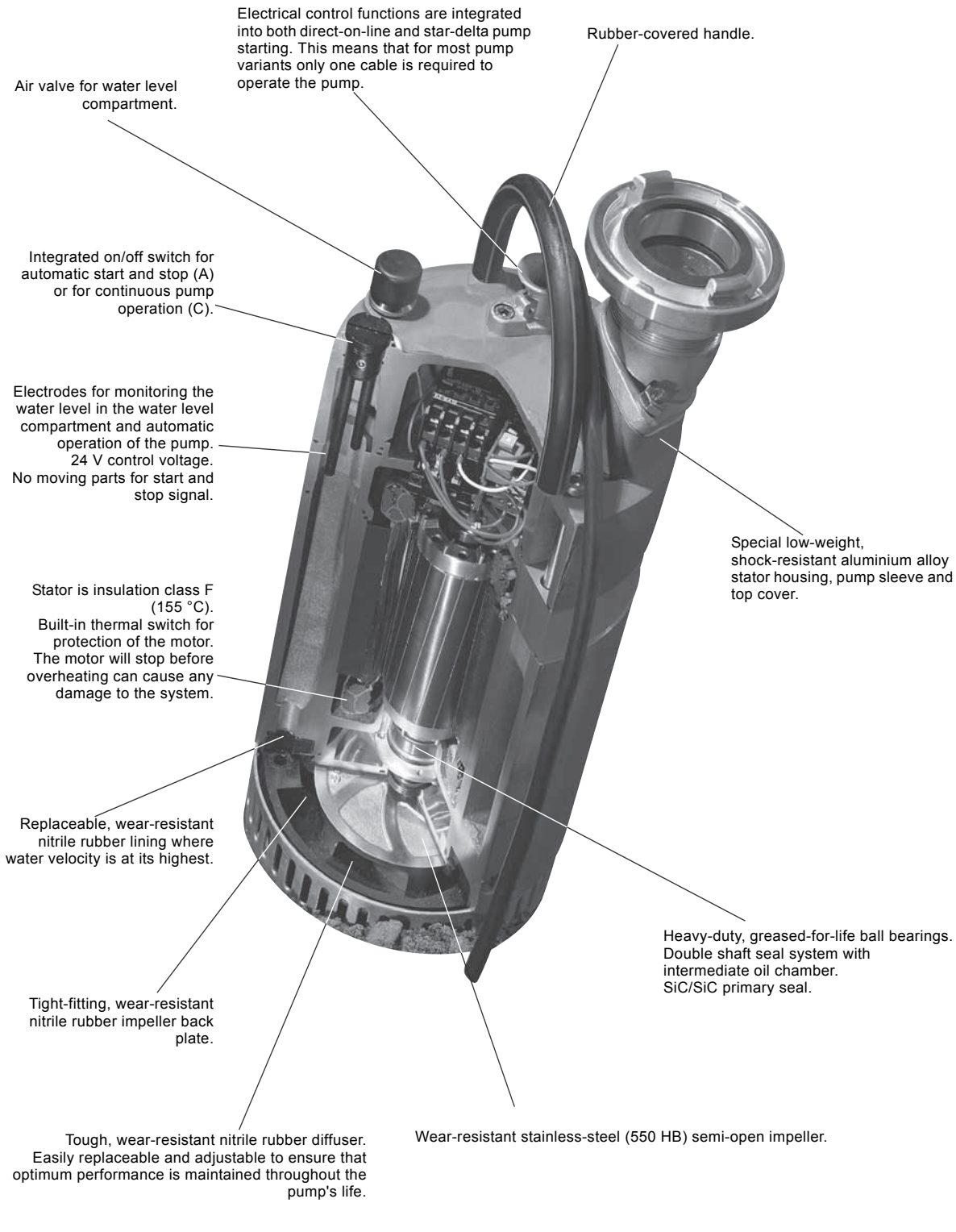


Fig. 4 Construction overview

Pump

Stator housing, pump sleeve and top cover

The pumps have stator housing, pump sleeve and top cover made of aluminium.

The DW.50.08 has a polypropylene pump sleeve.

Shaft and bearings

The rotor shaft is made of stainless steel. It rotates in an upper and a lower maintenance-free pre-lubricated heavy-duty ball bearing.

DW.50.07 to DW.100.66 (0.7 to 6.6 kW) have two single-row ball bearings.

In DW.100.110 to DW.150.200 (11 and 20 kW), the lower ball bearing is a double-row ball bearing, the upper a single-row ball bearing.

Impeller

All pumps have a semi-open multivane impeller cast in high-chromium stainless steel for maximum wear resistance. Hardness: 550 HB.

The impeller is provided with back vanes to protect the shaft seal against abrasives.

The three large motor sizes (6.6, 11 and 20 kW) can have two impellers connected in series to obtain high heads.

Wear parts

Because of the tough applications, the real strength of the pumps is the rubber parts.

In order to provide protection against abrasives in the pumped liquid, the impeller is fitted between two rubber parts. A rubber-coated back plate above the impeller protects the bottom of the oil chamber against wear.

As the rubber is soft compared to the impeller, it allows abrasives to intrude the surface as the impeller passes the particles.

As the diffuser becomes worn, it is easily adjusted against the impeller with the staybolts to maintain the high performance.

In pumps with two impellers, a rubber-coated intermediate plate is fitted between the two impellers.

A rubber liner protects against wear inside the pump aluminium sleeve where the velocity is highest.

Shaft seal

In DW.50.08 (polypropylene pump sleeve), the shaft seal system is a grease-filled bushing with lip seals in both ends.

DW.50.07 to DW.100.66 (0.7 to 6.6 kW, aluminium pump sleeve) have a combination of a mechanical seal and a lip seal. The primary seal is made of silicon carbide/silicon carbide, and the secondary seal is a lip seal.

DW.100.110 to DW.150.200 (11 and 20 kW, aluminium pump sleeve) have two mechanical seals. The primary seal is made of silicon carbide/silicon carbide and the secondary seal of carbon/aluminium oxide.

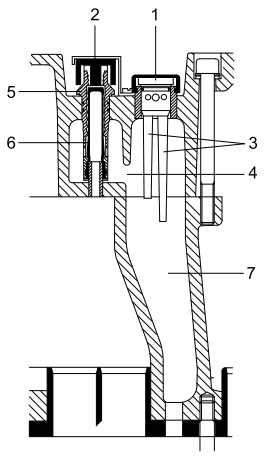
The space between the primary and secondary seals is filled with oil or grease (DW.50.08).

Integrated level control ("A" versions)

Note: The following does not apply to DW.50.08.A pumps as they are fitted with a float switch.

Automatic level control is achieved by means of moisture-sensing electrodes monitoring the water level in the pit/sump to be drained.

The control voltage is 24 V.



TM01 3435 9998

Fig. 5 Integrated level control

Pos.	Description
1	Electrode unit
2	Air valve
3	Electrodes
4	Water level compartment
5	Valve body
6	Valve rubber
7	Water rising channel

Electrode unit (1)

The electrode unit is located in the pump top cover and also functions as a switch for easy changeover between automatic operation with level control, "A", and continuous (manual) operation, "C". The unit comprises two electrodes (3).

Air valve (2)

The air valve is located in the pump top cover close to the electrode unit (1). It consists of valve body (5), valve rubber (6) and valve cap.

Electrodes (3)

The two electrodes, one short and one long, protrude downwards into the water level compartment (4).

Short electrode: Starts the pump.

Long electrode: Keeps the pump running.

The two electrodes ensure that the pump keeps running if the water level in the water level compartment (4) varies a little or if the pump is tilted during operation.

Water level compartment (4)

The compartment is vertically separated from the stator housing.

Motor

The motor is a watertight, totally enclosed 2-pole motor for 50 Hz with voltage tolerances of - 10 %/+ 6 %.

Enclosure class: IP68.

Insulation class: F (155 °C).

Maximum number of starts per hour: 30.

All motors are designed for direct-on-line starting and fitted with thermal overload switches in the stator windings that break the circuit at 130 °C.

11 and 20 kW pumps are also available for star-delta starting. All 11 and 20 kW pumps with integrated motor starter incorporate an overcurrent relay.

The pumps are supplied with 20 metres of cable, type H07RN-F.

Overload protection

The pumps incorporate overload protection. Furthermore, pump types DW.100.110 to DW.150.200 have an overload circuit to protect the motor in case the impeller is seized up due to debris.

Cooling

Sufficient cooling is achieved by means of the liquid flow inside the pump sleeve along the motor casing.

Material specification

See also the sectional drawings of the various pump types on pages 15 to 20.

Description	Material	DIN W.-Nr.	ASTM/AISI
Stator housing	All models*.	3.2383	AISI A360.2
Pump sleeve		3.2383	AISI A360.2
Outlet connection		3.2581	AISI A413.2
Top cover		3.2581	AISI A413.2
Motor cable	20 metres, type H07RN-F.		
Impeller	High alloyed cast iron impeller 600HV	EN 12513	
Shaft	DW.65.27 to DW.100.66: Steel shaft (1.0533) with welded stainless steel (1.4301) shaft end. All other models: Stainless steel (1.4021).		
Bearings	DW.50.07 to DW.100.66: • Two single-row heavy-duty prelubricated ball bearings. DW.100.110 to DW.150.200 (11 and 20 kW): • Heavy-duty prelubricated ball bearings. • The lower ball bearing is a double-row ball bearing. • The upper bearing is a single-row ball bearing.		
Shaft seals	DW.50.08 with polypropylene pump sleeve: • Grease-filled seal bushing and a lip seal in both ends. DW.50.07 to DW.100.66 with aluminium pump sleeve: • Combination of a mechanical seal and a lip seal. • Primary seal: mechanical seal, silicon carbide/silicon carbide. • Secondary seal: lip seal. DW.100.110 to DW.150.200 (11 and 20 kW): • Primary seal: silicon carbide/silicon carbide. • Secondary seal: carbon/ceramic.		
Bottom plate and strainer	DW.50.08: Polypropylene. All other models: Stainless steel.	1.4301	AISI 304
Wear parts	Nitrile rubber.		
Screws	Stainless steel.	1.4301	AISI 304

* DW.50.08 has a polypropylene pump sleeve and extruded aluminium stator housing.

Sectional drawings

DW.50.07.(A)1/09.(A)3

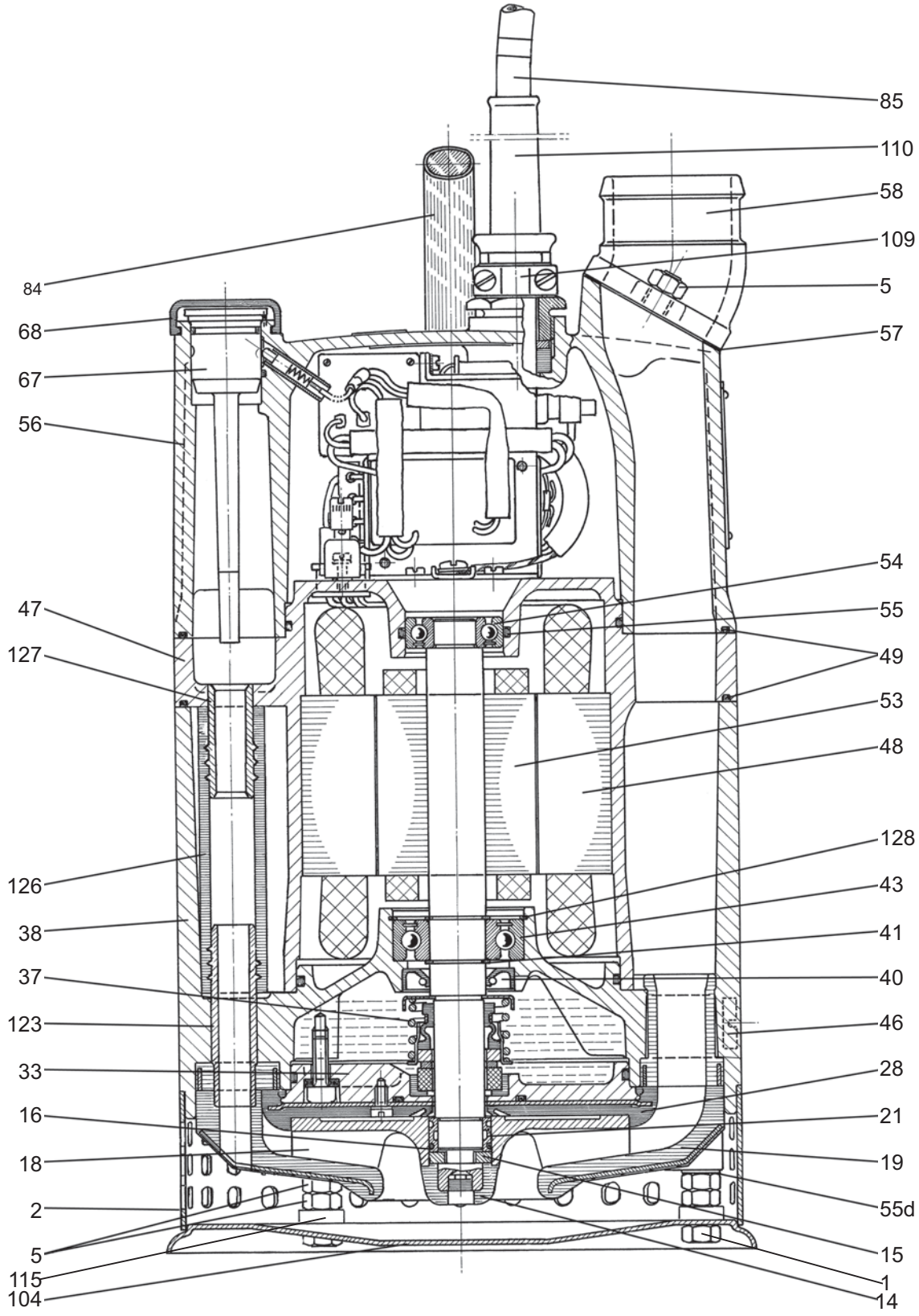


Fig. 6 DW.50.07.(A)1/09.(A)3

DW.65.27.(A)3

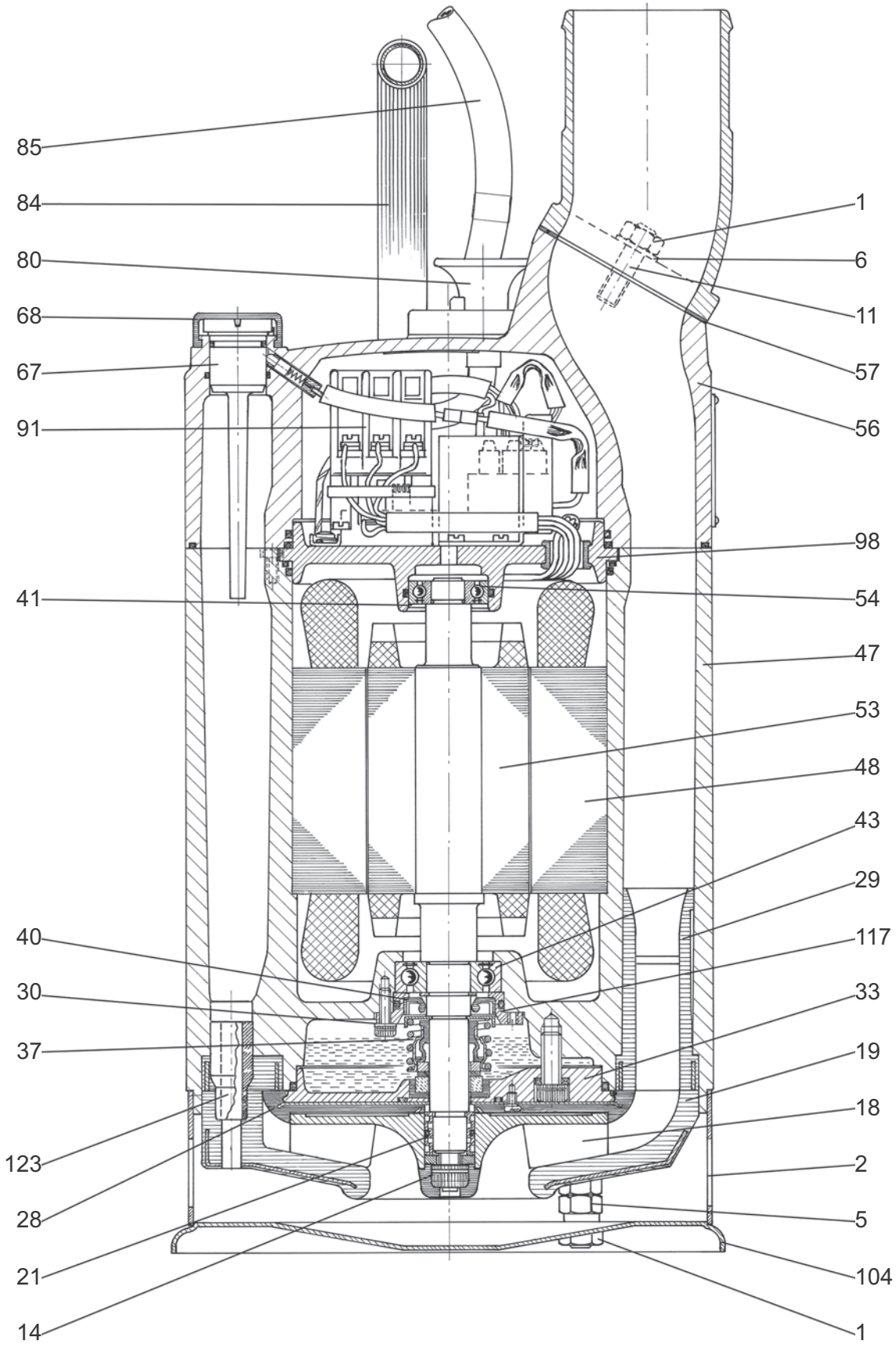


Fig. 7 DW.65.27.(A)3

DW.65.39.(A)3.H/100.39.(A)3

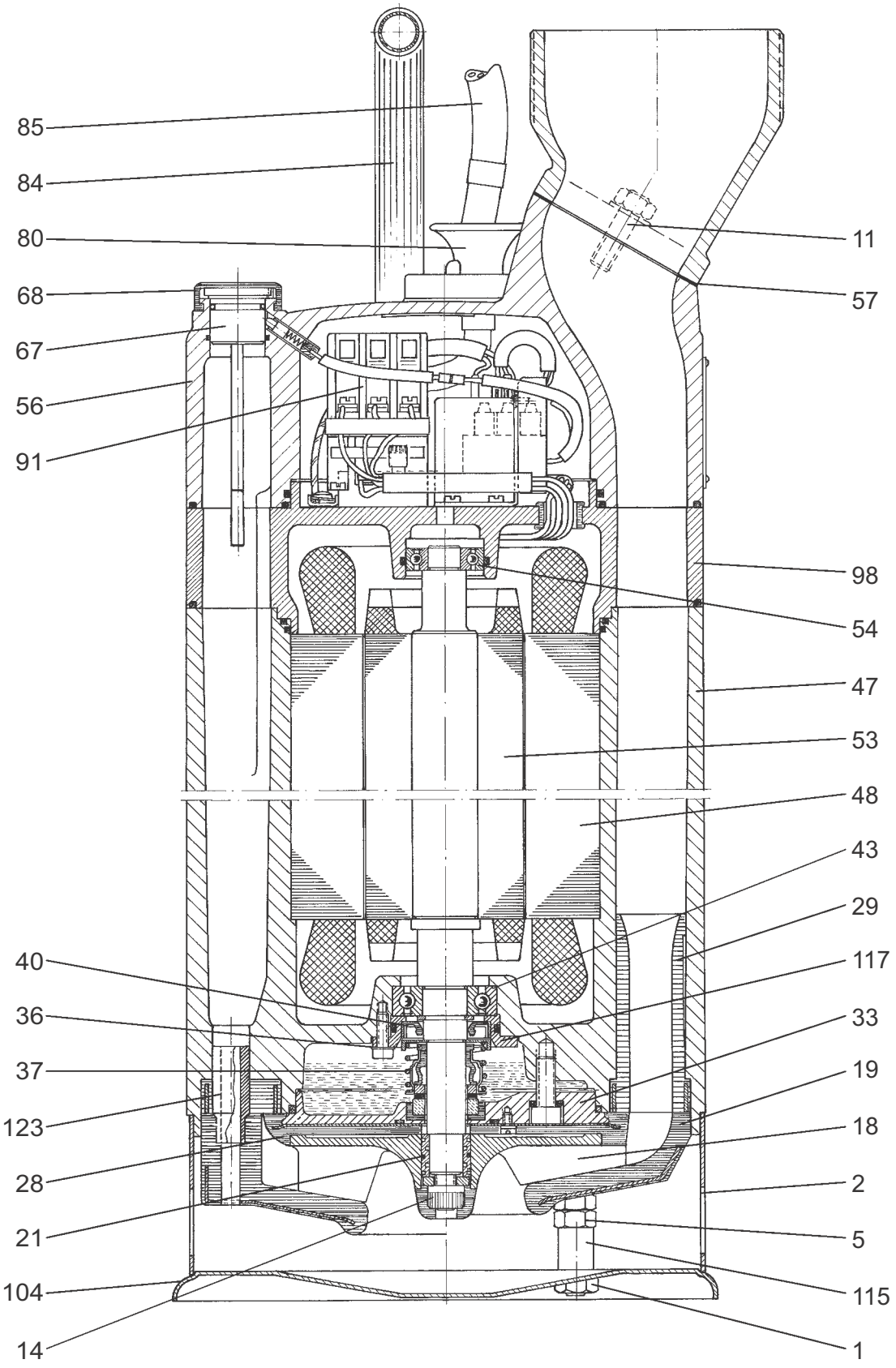


Fig. 8 DW.65.39.(A)3.H/100.39.(A)3

DW.100.66.(A)3.H/100.66.(A)3

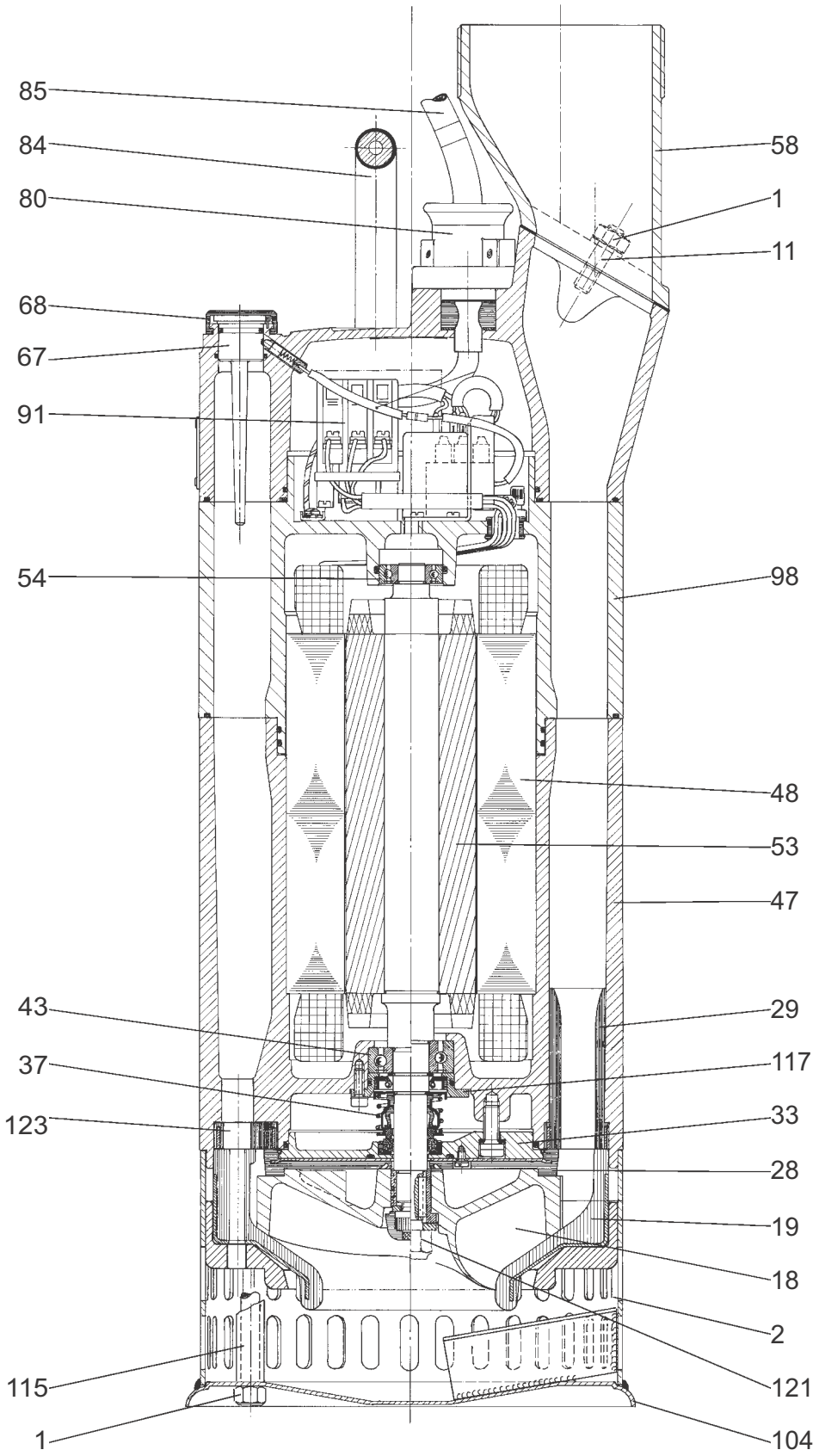


Fig. 9 DW.100.66.(A)3.H/100.66.(A)3

DW.100.110.(A)3.H/150.110.(A)3

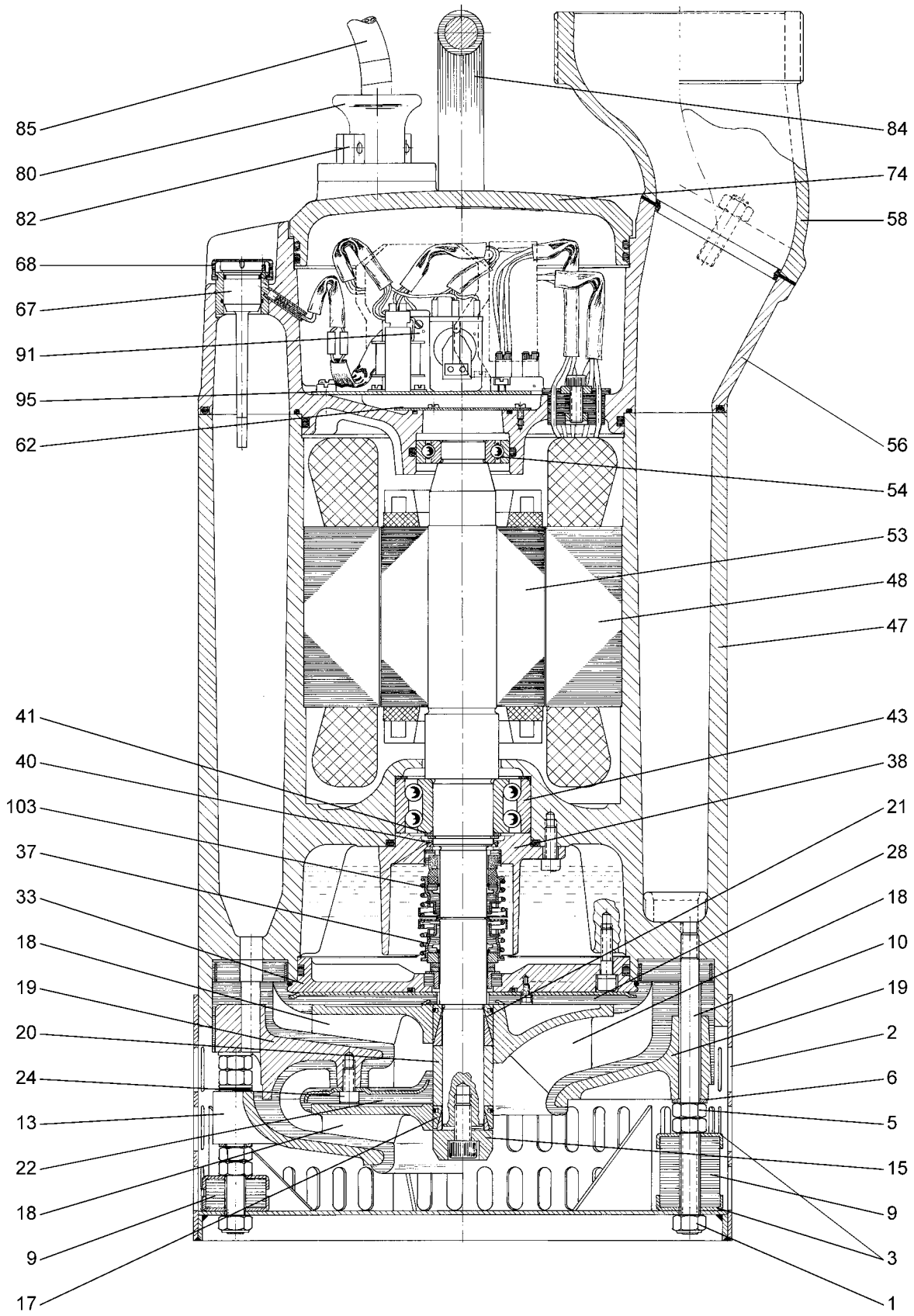


Fig. 10 DW.100.110.(A)3.H/150.110.(A)3

DW.100.200.H/150.200

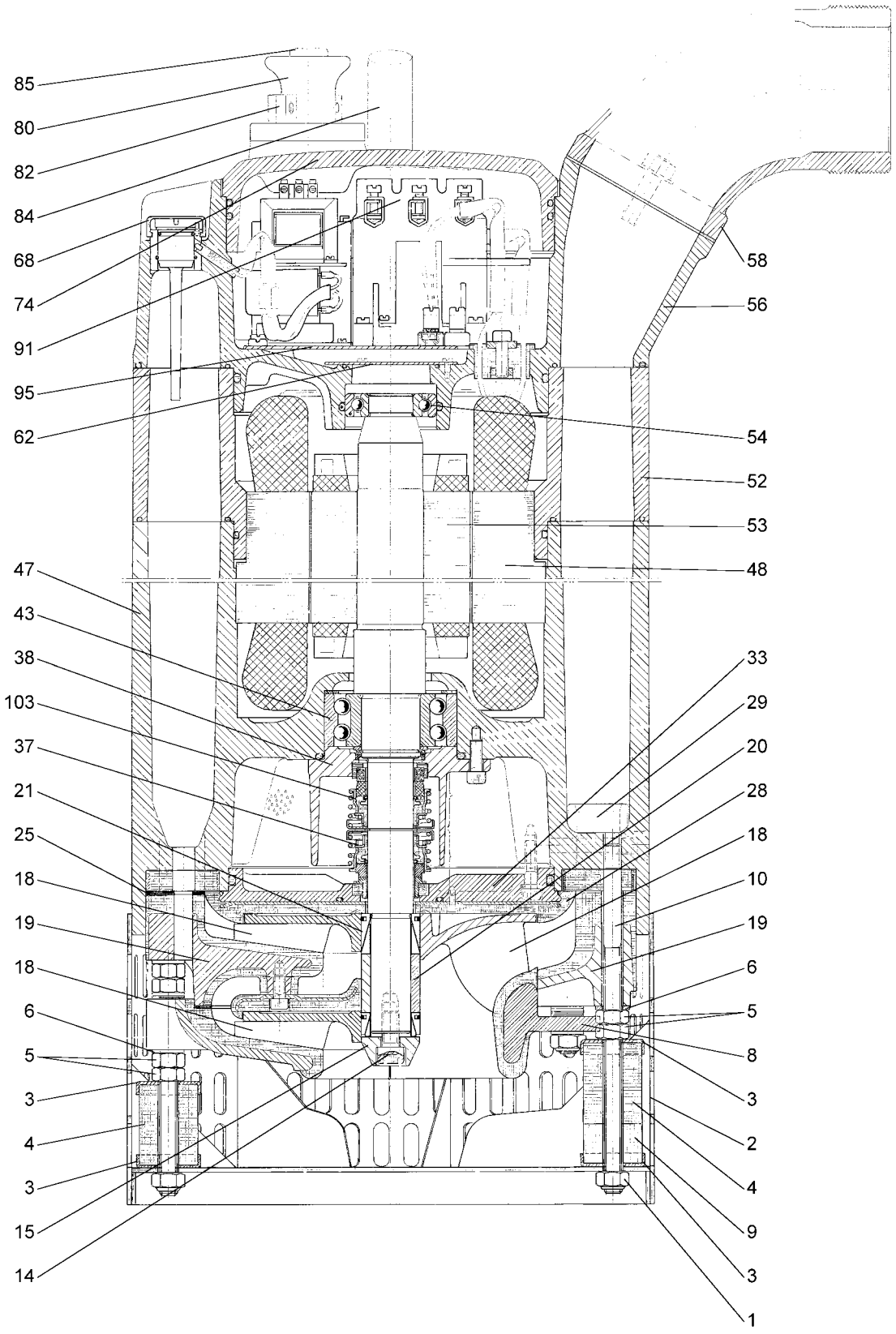


Fig. 11 DW.100.200.H/150.200

Components

Pos.	Component	DW.50.07/09	DW.50.08	DW.65.27	DW.65-100.39	DW.100.66	DW.100-150.110	DW.100-150.200
1	Lock nut	•	•	•	•	•	•	•
2	Strainer	•		•	•	•	•	•
	Cooling jacket		•					
3	Washer						•	•
4	Spacing pipe							•
5	Nut	•	•	•	•		•	•
6	Washer		•	•			•	•
8	Diffuser inlet							•
9	Spacing pipe						•	•
10	Stud bolt		•				•	•
11	Stud bolt		•	•	•	•		
13	Diffuser						•	
14	Screw	•		•	•			•
15	Washer	•					•	•
16	O-ring	•						
17	Split cone complete						•	
18	Impeller	•	•	•	•	•	•	•
19	Diffuser	•	•	•	•	•	•	•
20	Sleeve						•	•
21	Split cone	•		•	•		•	•
22	Impeller disc						•	
24	Screw						•	
25	Seal ring							•
28	Impeller disc	•	•	•	•	•	•	•
29	Rubber liner			•	•	•		•
30	Screw		•	•				
33	Cover	•		•	•	•	•	•
36	Screw	•			•			
37	Shaft seal (primary)	•	•	•	•	•	•	•
38	Bearing housing	•						
	Bearing bracket		•					
	Bearing retainer						•	•
40	Seal ring	•		•	•		•	
41	Retaining ring	•	•	•			•	
43	Ball bearing	•	•	•	•	•	•	•
46	Screw	•						
47	Stator housing	•	•	•	•	•	•	•
48	Stator complete	•	•	•	•	•	•	•
49	O-ring	•	•					
52	Intermediate part							•
53	Shaft with rotor	•	•	•	•	•	•	•
54	Ball bearing	•	•	•	•	•	•	•
55	O-ring	•	•					
55d	Washer	•						
56	Top cover	•	•	•	•		•	•
57	Gasket	•		•	•			
	O-ring		•					
58	Hose connector / Outlet port	•	•			•	•	•
62	Cover						•	•
67	Electrode unit	•		•	•	•	•	•
68	Rubber cap	•		•	•	•	•	•
74	Cover						•	•
80	Cable entry			•	•	•	•	•
82	Clamp						•	•
84	Handle	•	•	•	•	•	•	•
85	Cable with plug	•	•	•				
	Motor cable				•	•	•	•
91	Contactor		•	•	•	•	•	•
95	Bracket		•				•	•
98	Bearing retainer		•	•	•	•		
103	Shaft seal						•	•
104	Base plate	•	•	•	•	•		
109	Cable entry unit	•	•					

Pos.	Component	DW.50.07/09	DW.50.08	DW.65.27	DW.65-100.39	DW.100.66	DW.100-150.110	DW.100-150.200
110	Cable sleeve	•	•					
115	Rubber bush	•			•	•		
117	Seal carrier			•	•	•		
121	Lock nut					•		
123	Bushing	•						
	Sleeve			•	•	•		
126	Pipe	•						
127	Bushing	•						
128	Retaining ring	•						

7. Product description

Integrated level control

Pumps with integrated level control have a switch for setting the pump to automatic operation, "A", or to continuous (manual) operation, "C".

When the pump has been lowered into the pit, sump, etc., switch on the power supply. The integrated level control system now automatically starts and stops the pump, depending on the water level.

Note: The DW.50.08 pumps for automatic operation are supplied with a float switch with 0.5 metres of cable. The float switch is fitted to the top cover.

How it works

The following description does not apply to DW.50.08.A pumps, as they are fitted with a float switch.

Start conditions

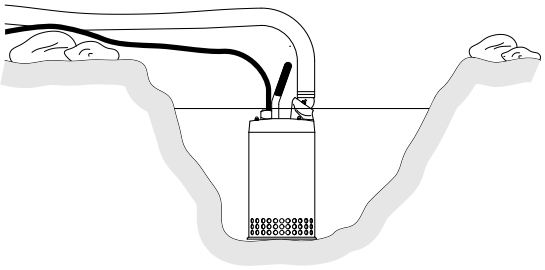


Fig. 12 Start conditions

When the water level rises, the pump is filled with water, and the built-in electrodes come into contact with water. When this happens, an electric circuit switches on the pump.

Pump in operation

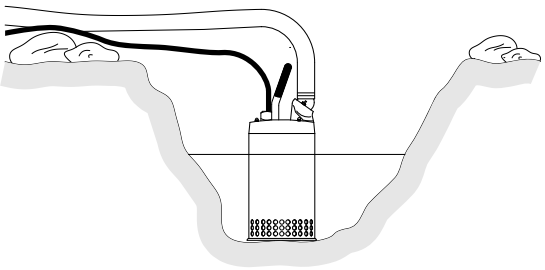


Fig. 13 Pump in operation

The water level decreases when the pump is running, but due to the pressure in the pump, the water level in the electrode chamber remains high, and the pump continues to run.

Stop conditions

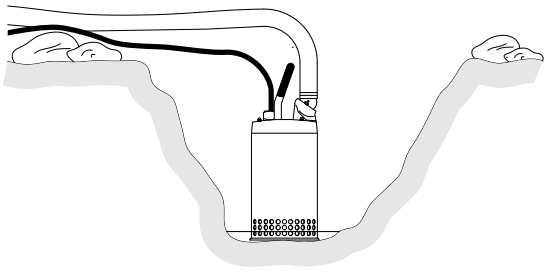


Fig. 14 Low water level

The pump will start sucking air when the water level has fallen below the inlet strainer. Because of the low pump pressure, air is sucked into the electrode chamber. The water level in the electrode chamber decreases, but the pump will run as long as the long electrode is in contact with water. When the water level has fallen below the long electrode, the electric circuit is broken, and the pump stops.

Non-return valve

When A models are used for automatic operation in deep pits/sumps, a non-return valve must the fitted immediately after the outlet port to prevent backflow and thus intermittent operation when the pit/sump has been drained. See fig. 15.

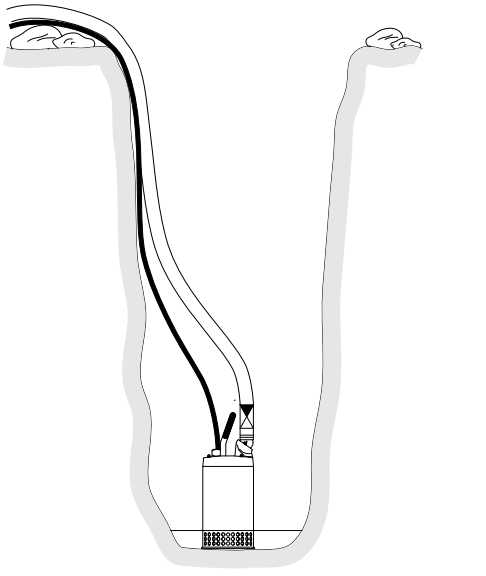


Fig. 15 Pump installed in pit with long vertical riser pipe or hose

Frequency converter operation

Do not connect DW pumps with integrated motor starter to a frequency converter, as this may result in damage to the motor.

Frequency converter operation will often expose the motor insulation system to a heavier load and cause the motor to be more noisy than usual due to eddy currents caused by voltage peaks.

In addition, large motors driven via a frequency converter will be loaded by bearing currents.

Testing

All pumps are tested before leaving the factory.

The factory test report is based on ISO 9906:2012, grade 3B. You can order test reports together with the pump or separately based on the pump serial number.

Other tests or third-party inspection certificates are available on request.

8. How to read the curve charts

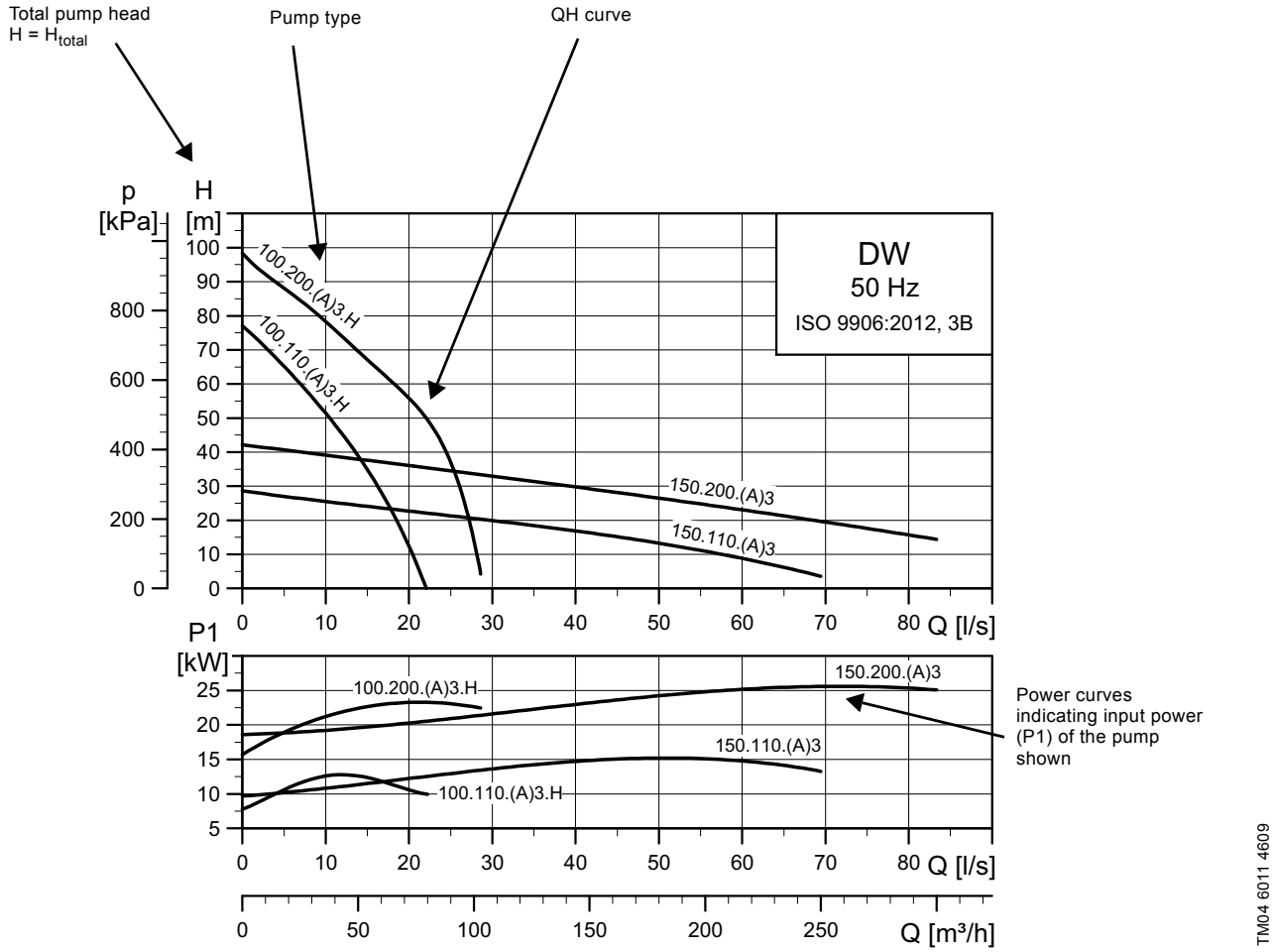


Fig. 16 Curve chart

Curve conditions

The guidelines below apply to the curves in the performance charts on pages 25 to 27.

- Tolerances according to ISO 9906:2012, grade 3B.
- The curves apply to the pumping of airless water at a temperature of 20 °C and a kinematic viscosity of 1 mm^2/s (1 cSt).
- In the case of other densities than 1000 kg/m^3, the outlet pressure is proportional to the density.
- When pumping liquids with a density higher than 1000 kg/m^3, use pumps with correspondingly higher outputs.
- Do not use the curves as guarantee curves.

Certificates

Certificates have to be confirmed for every order and are available on request:

- Certificate of compliance with the order (EN 10204-2.1)
- Pump test sheet.

Witness test

The customer can witness the testing procedure according to ISO 9906:2012, grade 3B.

The witness test is not a certificate and will not result in a written statement from Grundfos. The witness is the only guarantee that everything is carried out as prescribed in the testing procedure.

If the customer wants to witness the test of the pump performance, state this request in the order.

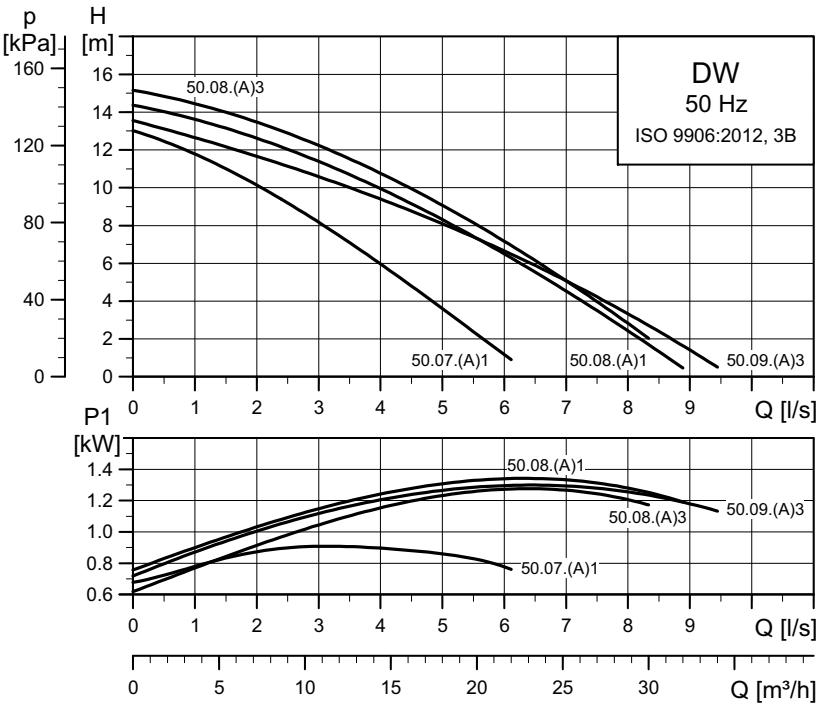
9. Performance curves and technical data

DW.50.07, DW.50.08, DW.50.09

DW.50.08

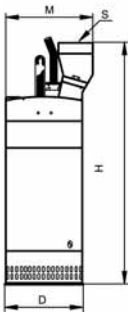
DW.50.07/
DW.50.09

TM04 5970 4609 - TM04 5971 4609



TM04 6009 4609

Dimensions, weight and max. installation depth



TM01 3347 3998

Pump type	H [mm]	D [mm]	M [mm]	S [mm] / [inch]	Weight* [kg]	Max. installation depth [m]
DW.50.07.1	395	210	212	50 / 2	17	17
DW.50.07.A1	395	210	212	50 / 2	18	17
DW.50.08.1	432	200	200	50 / 2	13	5
DW.50.08.A1	432	200	200	50 / 2	13	5
DW.50.08.3	432	200	200	50 / 2	13	5
DW.50.08.A3	432	200	200	50 / 2	13	5
DW.50.09.3	365	210	212	50 / 2	17	17
DW.50.09.A3	365	210	212	50 / 2	18	17

* Without cable.

Electrical data

Pump type	Voltage [V]	P2 [kW]	n [min^{-1}]	Starting method	I_N [A]
DW.50.07.1/A1	1 x 230	0.7	2800	DOL	4.0
DW.50.08.1/A1	1 x 230	0.8	2800	DOL	6.0
DW.50.08.3/A3	3 x 230	0.8	2800	DOL	4.3
	3 x 400				2.5
DW.50.09.3/A3	3 x 230	0.9	2800	DOL	4.5
	3 x 400				2.6

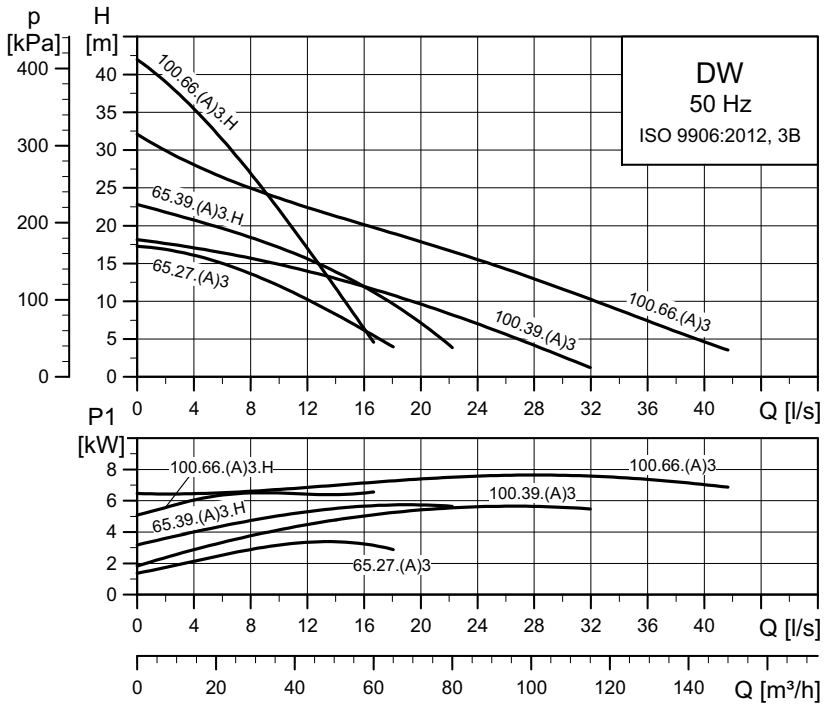
DW.65.27, DW.65.39, DW.100.39, DW.100.66

DW.65.27

DW.65.39/
DW.100.39

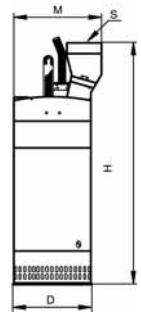
DW.100.66

TM04 5973 4609 - TM04 5972 4609 - TM04 6018 4609



TM04 6010 0510

Dimensions, weight and maximum installation depth



TM01 3347 3998

Pump type	H [mm]	D [mm]	M [mm]	S [mm] / [inch]	Weight* [kg]	Max. installation depth [m]
DW.65.27.3	540	246	250	65 / 2 1/2	30	17
DW.65.27.A3	525	246	250	65 / 2 1/2	30	17
DW.65.39.3.H	605	246	275	65 / 2 1/2	36	17
DW.65.39.A3.H	590	246	275	65 / 2 1/2	36	17
DW.100.39.3	590	246	275	100 / 4	36	17
DW.100.39.A3	590	246	275	100 / 4	36	17
DW.100.66.3	725	264	275	100 / 4	51	17
DW.100.66.A3	710	264	275	100 / 4	51	17
DW.100.66.3.H	710	264	275	100 / 4	51	17
DW.100.66.A3.H	710	264	275	100 / 4	51	17

* Without cable.

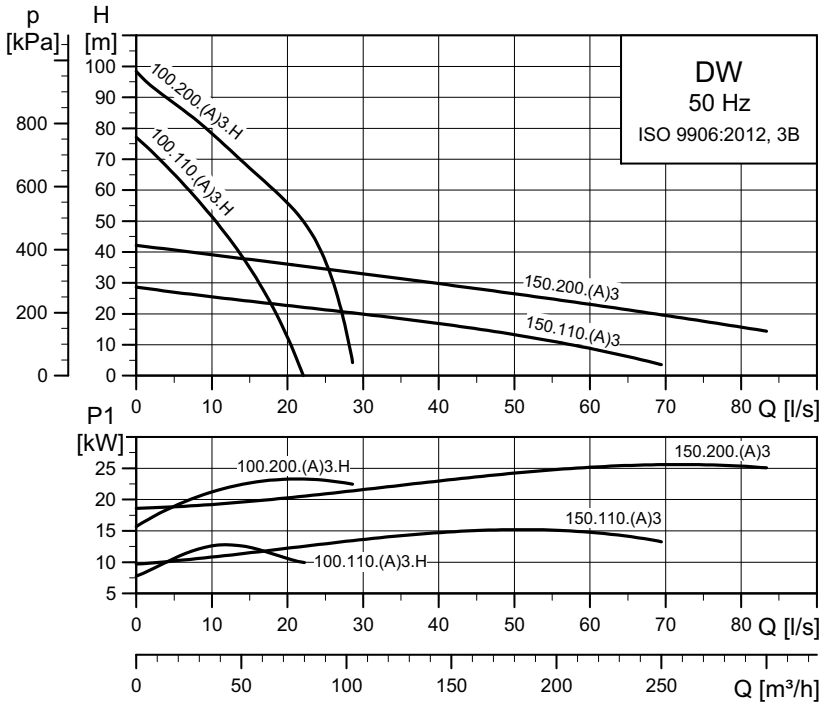
Electrical data

Pump type	Voltage [V]	P2 [kW]	n [min^{-1}]	Starting method	I_N [A]
DW.65.27.3/A3	3 x 230	2.7	2800	DOL	10.7
	3 x 400				6.2
DW.65.39.3.H/A3.H	3 x 230	3.9	2800	DOL	14.9
	3 x 400				8.6
DW.100.39.3/A3	3 x 230	3.9	2800	DOL	14.9
	3 x 400				8.6
DW.100.66.3/A3	3 x 230	6.6	2800	DOL	21.6
	3 x 400				12.5
DW.100.66.3.H/A3.H	3 x 230	6.6	2800	DOL	21.6
	3 x 400				12.5

DW.100.110, DW.150.110, DW.100.200, DW.150.200

DW.100.110/
DW.150.110

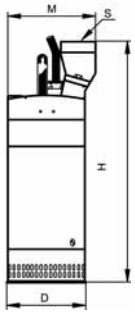
DW.100.200/
DW.150.200



TM04 5975 4609 - TM0 45974 4609

TM04 6011 4609

Dimensions, weight and maximum installation depth



TM01 3347 3998

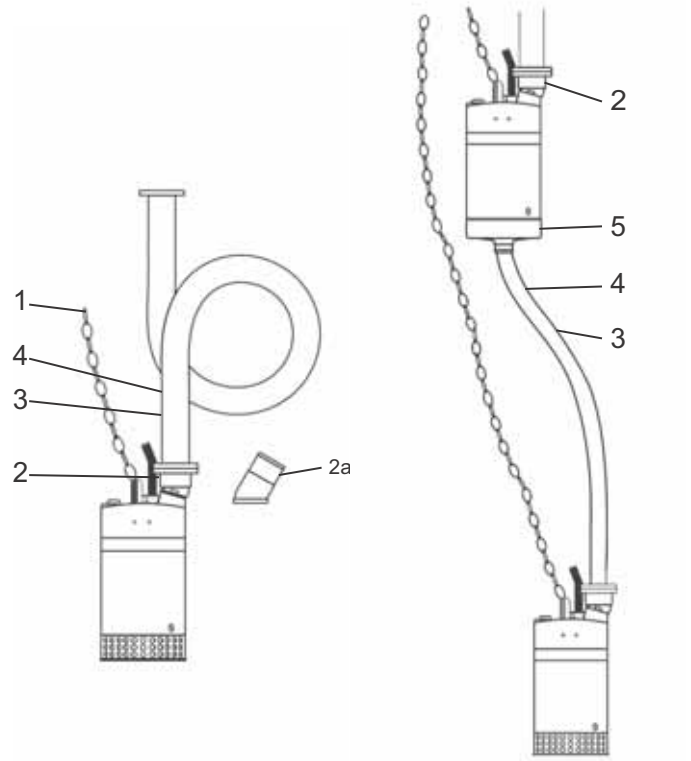
Pump type	H [mm]	D [mm]	M [mm]	S [mm] / [inch]	Weight* [kg]	Max. installation depth [m]
DW.100.110.3.H	850	360	410	100 / 4	110	17
DW.100.110.A3.H	850	360	410	100 / 4	110	17
DW.150.110.3	850	360	410	150 / 6	110	17
DW.150.110.A3	850	360	410	150 / 6	110	17
DW.100.200.3.H	1000	360	410	100 / 4	148	17
DW.100.200.A3.H	1000	360	410	100 / 4	148	17
DW.150.200.3	1000	360	410	150 / 6	148	17
DW.150.200.A3	1000	360	410	150 / 6	148	17

* Without cable.

Electrical data

Pump type	Voltage [V]	P2 [kW]	n [min^{-1}]	Starting method	I_N [A]
DW.100.110.3.H/A3.H	3 x 400	11	2800	DOL Y/D	21.0
DW.150.110.3/A3	3 x 400	11	2800	DOL Y/D	23.0
DW.100.200.3.H/A3.H	3 x 400	20	2800	DOL Y/D	40
DW.150.200.3/A3	3 x 400	20	2800	DOL Y/D	41

10. Accessories



TM04 6356 0210

Fig. 17 Position of accessories

Pos.	Product	Description	Dimensions	Pump type					Product number
				DW.50.08	DW.50	DW.65	DW.100	DW.150	
1	 TM01 7173 4099	Chain with shackle 500 kg certified - stainless steel 1.4571/A4	2 m	•	•	•	•	•	98538174
			3 m	•	•	•	•	•	98538175
			4 m	•	•	•	•	•	98538176
			6 m	•	•	•	•	•	98538177
			8 m	•	•	•	•	•	98538178
			10 m	•	•	•	•	•	98539179
2	 TM01 7164 4099	Coupling half, Storz coupling	Rp 2 - 2" hose	•	•				96001982
			Rp 2 1/2 - 3" hose			•			96002086
			Rp 4 - 4" hose				•		96005252
			Rp 6 - 6" hose					•	96005253
2a		Socket for hose connection	2"	•					96005218
			2"		•				96006095
			3"			•			96006096
			4"				• (DW.100.39)		96006097
			4"				• (DW.100.66)		96005049
			4"				• (DW.100.100) (DW.100.200)		96004991
			6"					• (DW.150.110) (DW.150.200)	96006098

Pos.	Product	Description	Dimensions	Pump type					Product number
				DW.50.08	DW.50	DW.65	DW.100	DW.150	
3 + 4	 TM04 6115 5009	Flat hose with Storz coupling	10 m x 2"	•	•				96001987
			10 m x 3"			•			96005254
			10 m x 4"				•		96005255
			10 m x 6"					•	96005256
			20 m x 2"	•	•				96005257
			20 m x 3"			•			96005259
			20 m x 4"				•		96005260
			20 m x 6"					•	96005261

Pos.	Description	Dimensions	Pump type					Product number
			DW.50.08	DW.50.07/09	DW.65	DW.100	DW.150	
-	CEE plug with phase inverter and on/off switch	2.5 - 4 A	•	•				96005250
		6.3 - 10 A			• (DW.65.27)			96006312
		10-16 A			• (DW.65.39)	• (DW.100.39) (DW.100.66)		96005251
		16-25 A				• (DW.100.110)		96005236

11. Grundfos Product Center

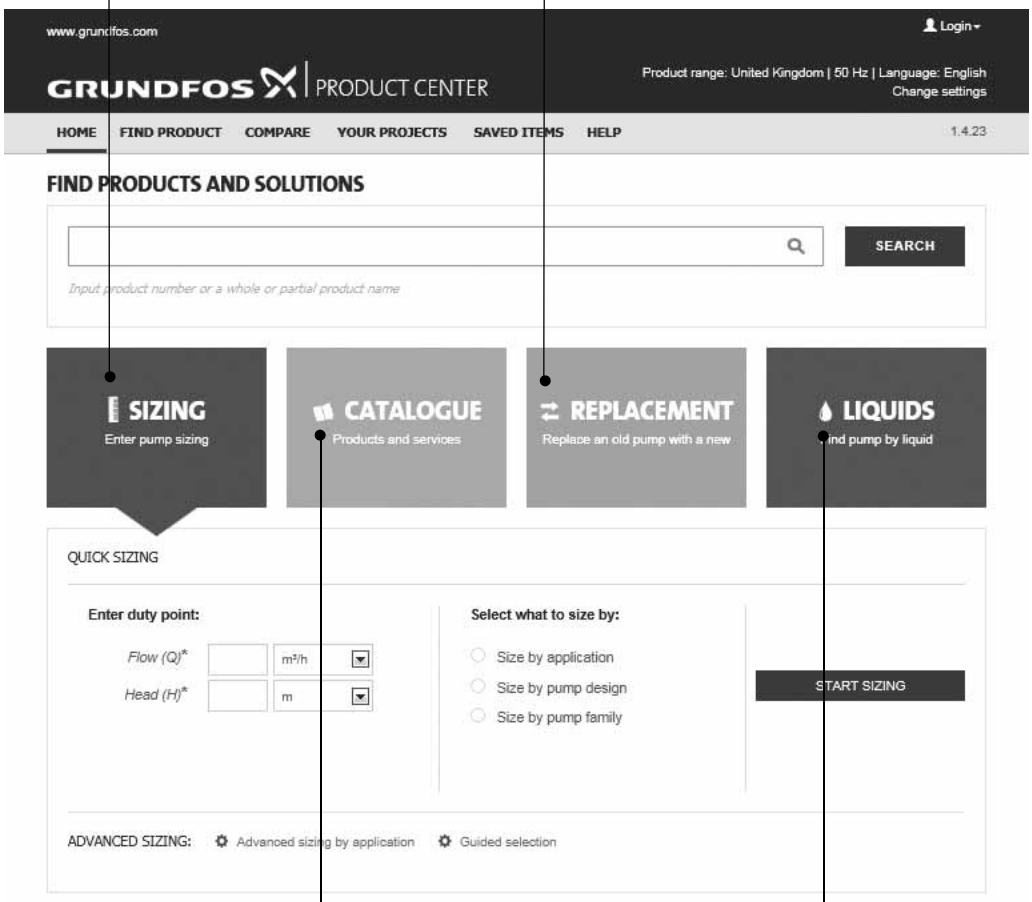
Online search and sizing tool to help you make the right choice.

http://product-selection.grundfos.com

"SIZING" enables you to size a pump based on entered data and selection choices.

"REPLACEMENT" enables you to find a replacement product. Search results will include information on the following:

- the lowest purchase price
- the lowest energy consumption
- the lowest total life cycle cost.



"CATALOGUE" gives you access to the Grundfos product catalogue.

"LIQUIDS" enables you to find pumps designed for aggressive, flammable or other special liquids.

All the information you need in one place

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc. in PDF format.

Subject to alterations.

be think innovate

97626414 1115
ECM: 1162867

GRUNDFOS A/S
DK-8850 Bjerringbro . Denmark
Telephone: +45 87 50 14 00
www.grundfos.com

GRUNDFOS