

## Technical Data 50 Hz

Vertical centrifugal pumps  
Series: DPVF / DPVCF / DPLHS



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# 1 Pump introduction

## 1.1 General

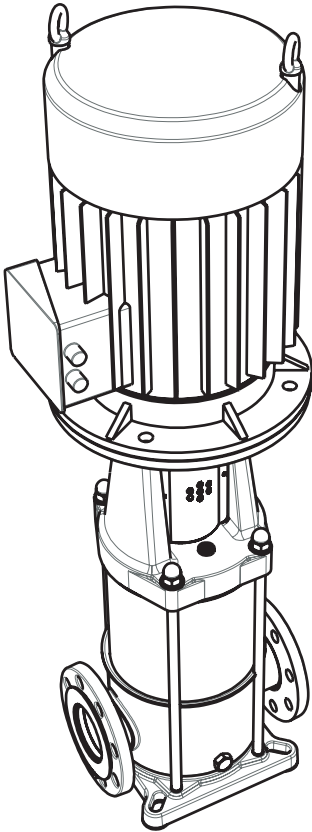


Figure 1: The vertical, multi-stage centrifugal pumps, DPV(S)F, DPVCF and DPLHS are produced by DP-Pumps.

## 1.2 Model key

Pump type	DPVS	F	45	-50	-1	
Materials	DPV					DP Vertical pumps in AISI 304 (1.4301).
	DPVS					DP Vertical pump in superior grade AISI 316 (1.4401).
	DPLHS					DP Vertical pump in superior grade AISI 316 (1.4401) 40 Bar.
	DPVCF					DP Vertical pump with cast-iron pump casing for heavy duty applications.
Pump connections		F				Round flanges DIN, JIS or ASME.
Model / flow			45			Pump model indicates nominal flow in [m <sup>3</sup> /h].
Stages / head				-50		Indicates number of impeller stages (50 = 5).
Half stage impeller					-1	Fitted with a half stage impeller (only DPV(S)F 45)

### 1.3 Description of the product

The vertical, single or multistage pump series DPVF, DPLHS and DPVCF are designed for pumping clean, watery liquids. Suction and discharge of the pump are in-line, making the pump easy to install. The hydraulic assembly is installed vertically and driven by an electric motor.

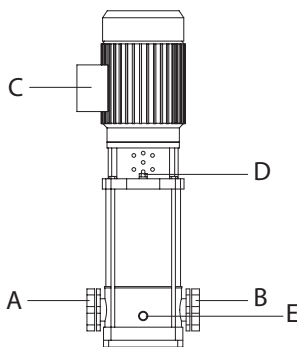
All hydraulic parts of the pump (except for the suction/ discharge casing of the DPVCF) are made of stainless steel, making the pump light and extremely suitable for applications that demand high grade materials, such as drinking water applications.

The DPV series is the standard vertical pump, available in various types. This is a compact vertical pump with a built-in non-return valve, especially designed for drinking water applications. The DPLHS is designed for high pressures (up to 40 Bar) and the DPVCF is designed for industrial, heavy duty applications, such as boiler feed.

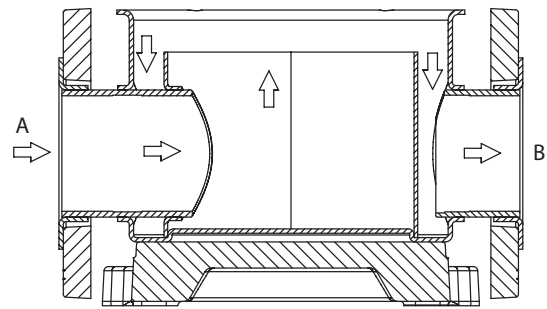
The pump is initially designed for vertical installation, but can be installed horizontally by using a special adaptation set.

### 1.4 Operation

The liquid is sucked in through the pump inlet (A) on the supply side under minimum pressure. The pump increases the pressure. The liquid leaves the pump through the pump outlet (B) on the delivery side under increased pressure.



- A Pump inlet
- B Pump outlet
- C Terminal box
- D Fill plug/air relief plug
- E Drain plug



### 1.5 Working range

The working range of the pumps in this series can be summarised as follows:

Table 1: Specification of the working range

Pump type	DPVF	DPVSF	DPVCF	DPLHS
Ambient temperature [°C]	+4 to 40			
Liquid temperature [°C]	-15 to 100 <sup>1</sup>	-15 to 120 <sup>2</sup>	-15 to 120	-15 to 80 <sup>3</sup>
Maximum working pressure [bar]	25 <sup>4</sup>			40 <sup>4</sup>
Allowable size of solids pumped	5µ to 1mm			
Minimum supply pressure	Not cavitating <sup>4</sup> .			
Viscosity liquid [cSt]	1 A higher viscosity may require more motor power. <sup>5</sup>			
Density liquid [kg/m <sup>3</sup> ]	1000 A higher density may require more motor power. <sup>5</sup>			
Cooling	The space above the cooling fan of the motor must at least be equal to 1/4 of the diameter of the inlet of the cooling fan of the motor in order to have a sufficient supply of air.			
Number of starts	Related to the motor <sup>5</sup>			
Minimum frequency [Hz]	10			
Maximum frequency [Hz]	60 <sup>b</sup>			

1. Using the factory option "o-ring sealing EPDM E425" the max. temp. limit is 120°C.
2. When pumping water, the max. allowable liquid temp is 80°C.
3. Higher temperatures are possible at lower pressure. For specific limits consult your supplier.
4. Contact your supplier for more detailed advice.

5. For standard motors see the technical specifications. When the pump is fitted with another motor brand, please consult the motor supplier.
6. Pumps that are intended for 50 Hz operation, may not be connected to 60 Hz.

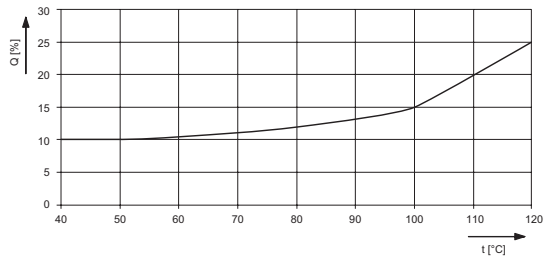


Figure 2: Minimum volume flows (Q) in% of Q optimum temperatures (t).

Table 2: Minimum volume flows ( $Q_{min}$ )

DP	50 Hz
	$Q_{min}$ in $m^3/h$
6	0,8
24	2,2
32	4,0
45	4,6
65	6,1

Table 3: Specific applications

type	application area
DPVF	(Drinking) water supply systems, irrigation systems, water treatment systems, car-wash systems, sprinkler systems.
DPVSF	Water-supply systems for drinking water, softened and de mineralised water, systems for brackish water, sea water and swimming-pool water, however limited with respect to temperature, pressure and chlorine percentage.
DPVCF	Systems for boiler supply and discharge of condensed water
DPLHS	Reverse osmosis installations and high pressure cleaning systems.

## 2 Performance characteristics

### 2.1 Performance curve details

The preceding diagrams give a global overview of all the pump models mentioned in this documentation. Detailed characteristics are given for each model showing the hydraulic efficiency,  $NPSH_{req}$ , and shaft power as well.

The performance of the pump depends on the number of stages. The number of stages are shown as a multiple of 10, as per example:

DPVF 45-60	6 full stage impellers
DPVF 45-50-1	5 full stage impellers and 1 half stage impeller

The detailed performance curves are in accordance with ISO 9906:2012 (Grade 3B). Vibration limits at rated speed and rated flow are according to ISO 9905.

The motors used for the measurements are standard DP. When using another motor brand the performance data, like Q/H, efficiency and shaft power must be corrected accordingly.

The characteristics given are based on:

- De-aerated water at a temperature of 20 °C
- Density of 1 kg/dm<sup>3</sup>
- Kinematical viscosity of 1 mm<sup>2</sup>/s (1 cst)

To prevent the pump from overheating, gathering gas, cavitation etc. a minimum flow has to be secured. The minimum flow corresponds to a percentage of the optimum flow  $Q_{opt}$  in relation to the temperature of the liquid pumped.

### 2.2 Minimum efficiency index

Per January 1st 2013 for multistage pumps (reference 50Hz and 2 poles) a new Commission Regulation (EU) No 547/2012 as part of the Directive 2009/125/EC is mandatory.

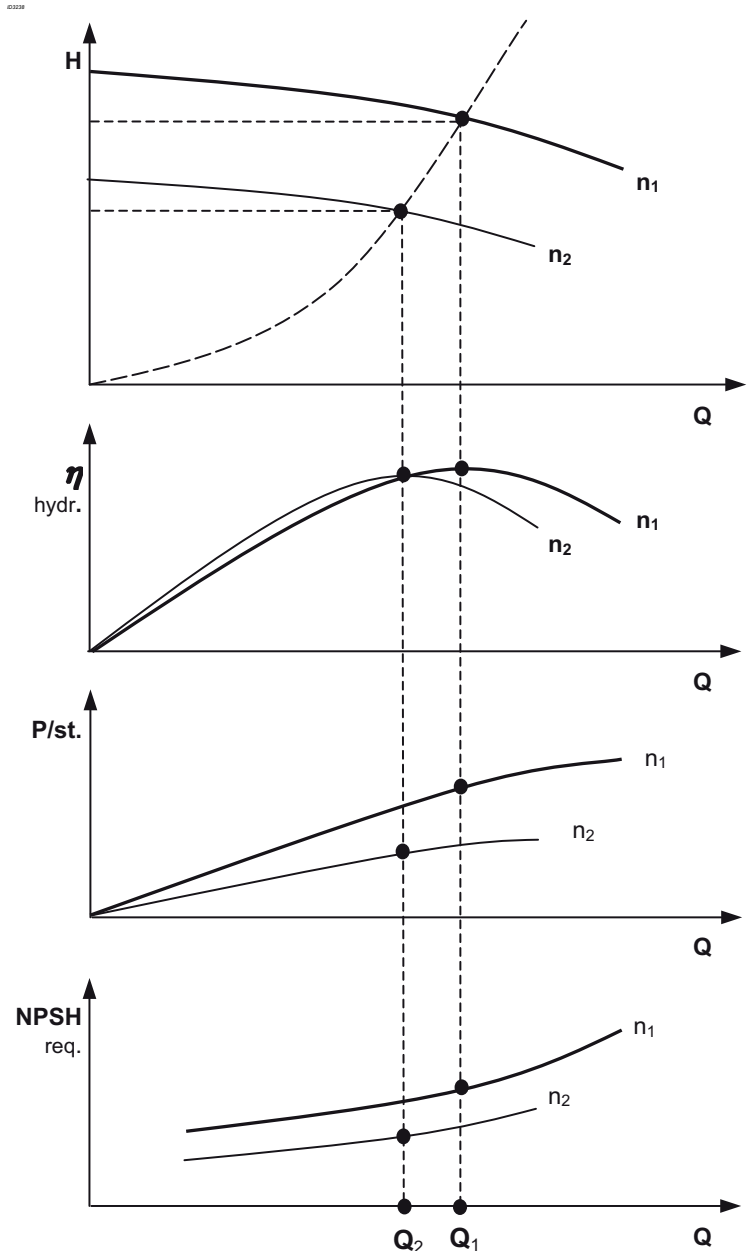
According to this the pumps need to apply to a new Minimum Efficiency Index (MEI). This value is set to be  $\geq 0.10$

:

### 2.3 Performance with variable frequency drive

The minimum frequency of the DP motor should be limited to 10 Hz to ensure sufficient cooling. When the rotational speed exceeds the nominal speed of the motor, make sure that the power output of the motor is suitable to drive the corresponding pump model.

The performance of the pump differs from the fixed speed performance according to the recalculation scheme.



$$Q_2 = \frac{n_2}{n_1} \cdot Q_1$$

$$H_2 = \frac{(n_2)^2}{(n_1)^2} \cdot H_1$$

$$\eta_2 = 1 - \left( (1 - \eta_1) \cdot \frac{(n_1)^{0.1}}{(n_2)^{0.1}} \right)$$

$$P_2 = \frac{(n_2)^3}{(n_1)^3} \cdot P_1$$

$$NPSH_2 = \frac{(n_2)^2}{(n_1)^2} \cdot NPSH_1$$

Figure 3: Performance characteristics

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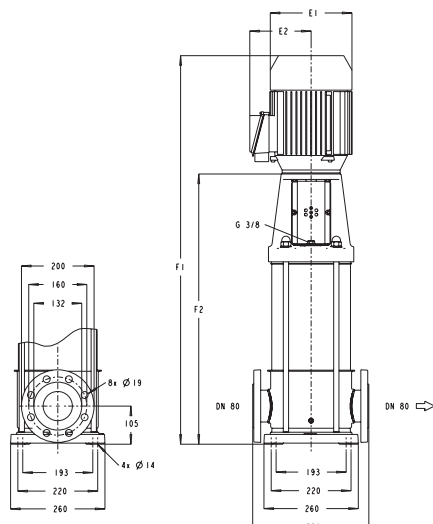




# 3 Technical specifications

## 3.1 Dimensions and weights DPV(S)F 45 50 Hz

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DPV(S)F 45

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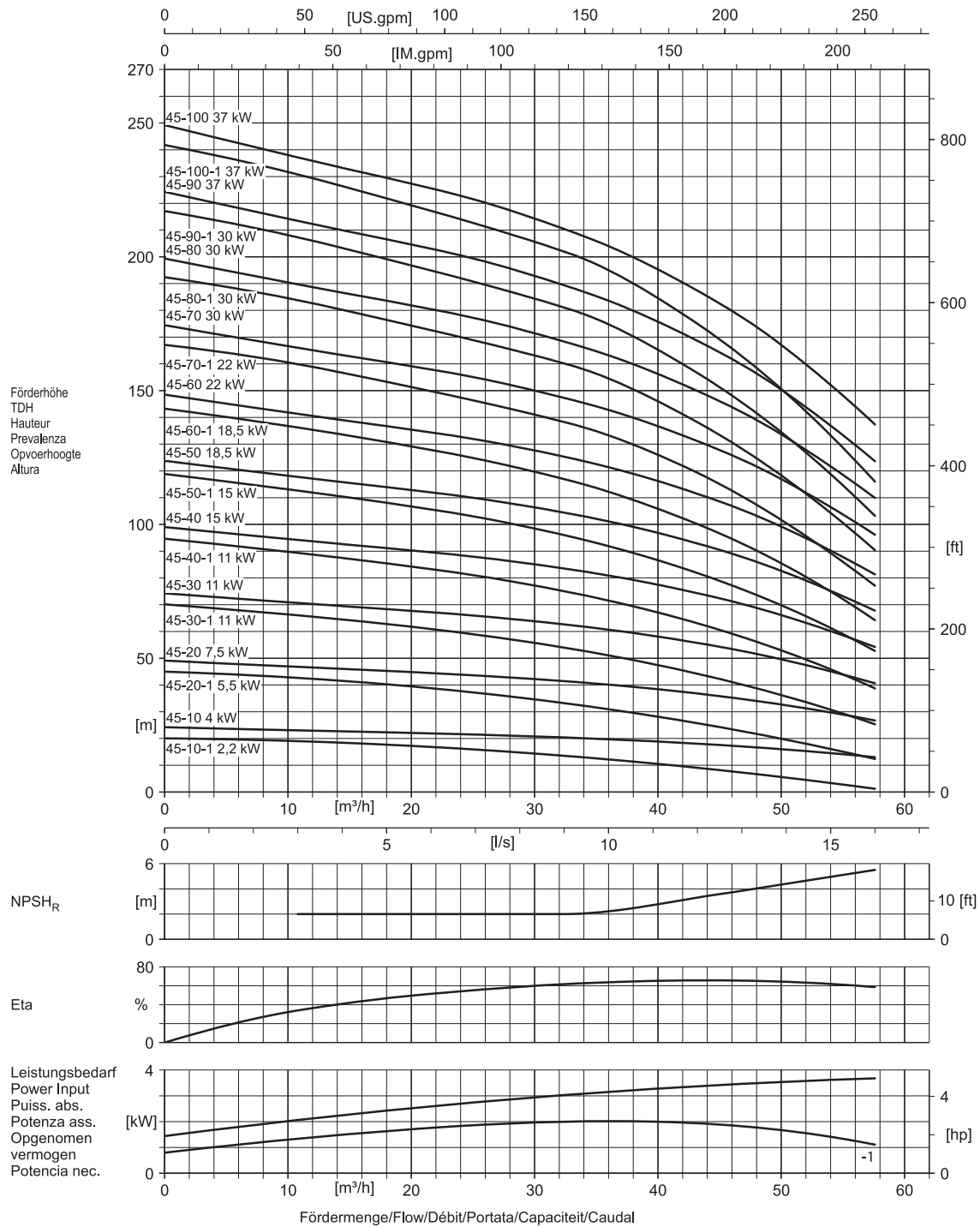
DPV(S)F 45 50 Hz	General					
Model	P [kW]	E1 [mm] <sup>1</sup>	E2 [mm]	F1 [mm]	F2 [mm]	Net weight [kg]
45- 10-1	2,2	176	136	733	458	62
45- 10	4	233	162	782	458	80
45- 20-1	5,5	233	162	855	526	88
45- 20	7,5	233	162	883	526	92
45- 30-1	11	315	206	1182	680	164
45- 30	11	315	206	1182	680	164
45- 40-1	11	315	206	1230	728	166
45- 40	15	315	206	1230	728	180
45- 50-1	15	315	206	1279	777	182
45- 50	18,5	315	206	1323	777	198
45- 60-1	18,5	315	206	1371	825	200
45- 60	22	350	225	1420	825	236
45- 70-1	22	350	225	1469	874	238
45- 70	30	400	290	1524	874	311
45- 80-1	30	400	290	1572	922	314
45- 80	30	400	290	1572	922	314
45- 90-1	30	400	290	1621	971	316
45- 90	37	400	290	1621	971	330
45- 100-1	37	400	290	1669	1019	332
45- 100	37	400	290	1669	1019	332

20000631-J

1. Diameter adapter flange 5,5-7,5 kW = 300 mm, 11-22 kW = 350 mm, 30-37 kW = 400 mm

### 3.2 Hydraulic performance DPV(S)F 45 50 Hz ~2900 1/min

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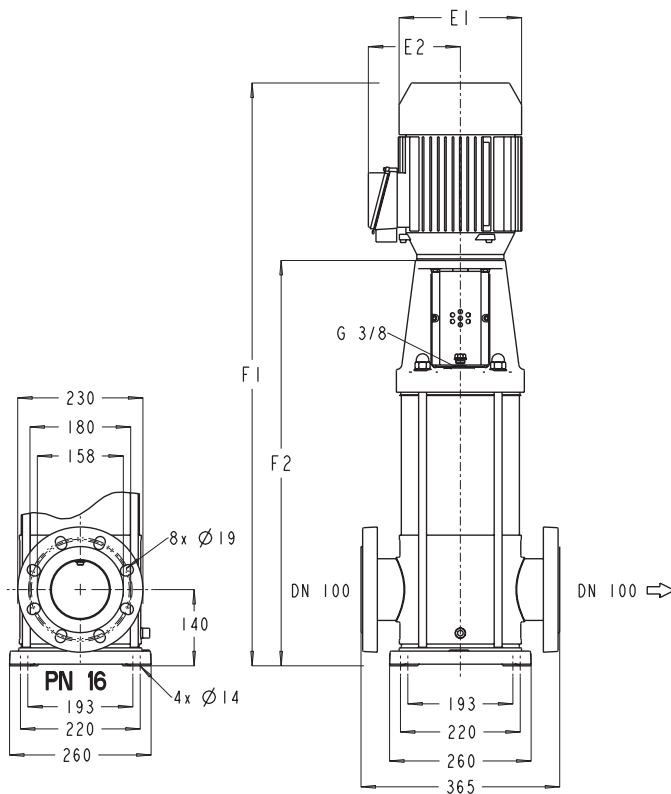


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### 3.3 Dimensions and weights DPV(S)F 65 50 Hz

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DPV(S)F 65

99000288-D

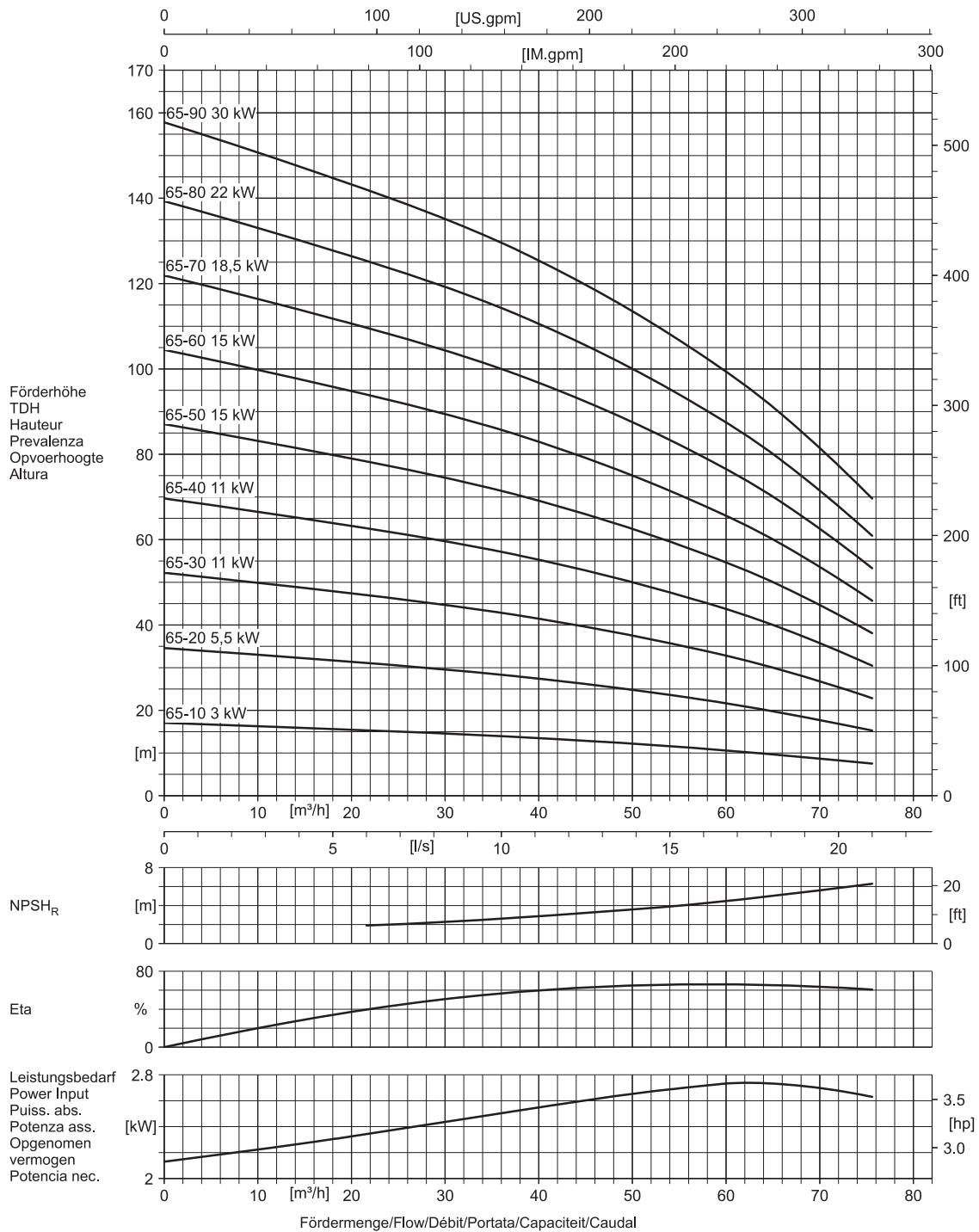
DPV(S)F 65 50 Hz		General				
Model	P [kW]	E1 [mm] <sup>1</sup>	E2 [mm]	F1 [mm]	F2 [mm]	Net weight [kg]
65- 10	3	194	147	886	570	78
65- 20	5,5	233	162	1008	679	97
65- 30	11	315	206	1300	798	104
65- 40	11	315	206	1389	887	173
65- 50	15	315	206	1478	976	191
65- 60	15	315	206	1567	1065	194
65- 70	18,5	315	206	1700	1154	213
65- 80	22	350	225	1838	1243	252
65- 90	30	400	290	1982	1332	255

99000286-I

1. Diameter adapter flange 5,5-7,5 kW = 300 mm, 11-22 kW = 350 mm, 30-37 kW = 400 mm

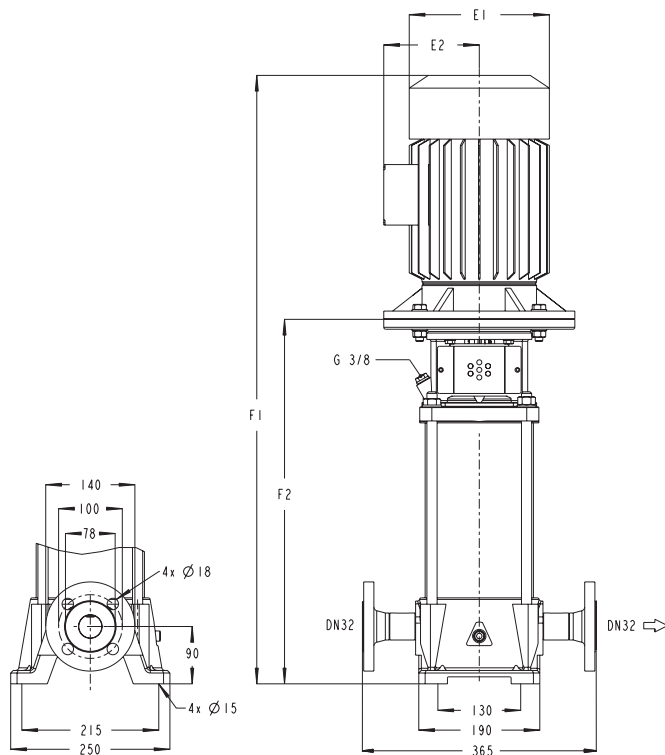
### 3.4 Hydraulic performance DPV(S)F 65 50 Hz ~2900 1/min

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### 3.5 Dimensions and weights DPLHS 6 50 Hz

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DPLHS 6

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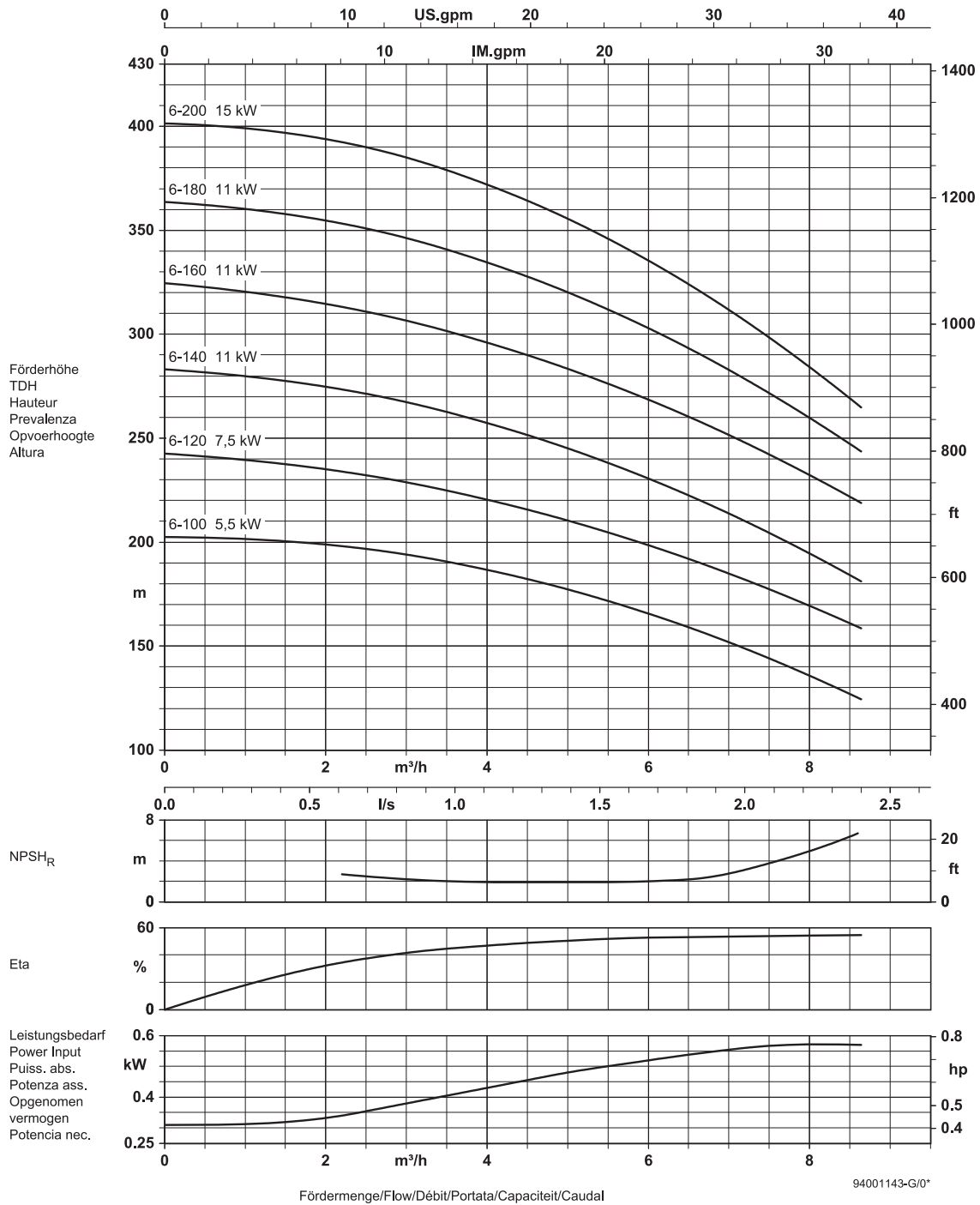
DPLHS 6 50 Hz		General				
Model	P [kW]	E1 [mm] <sup>1</sup>	E2 [mm]	F1 [mm]	F2 [mm]	Net weight [kg]
6-50	4	233	162	753	429	79
6-70	4	233	162	813	489	82
6-80	4	233	162	843	519	83
6-100	5,5	233	162	928	599	92
6-120	7,5	233	162	1015	658	99
6-140	11	315	206	1250	748	166
6-160	11	315	206	1310	808	171
6-180	11	315	206	1369	867	174
6-200	15	315	206	1429	927	191

95000234-H

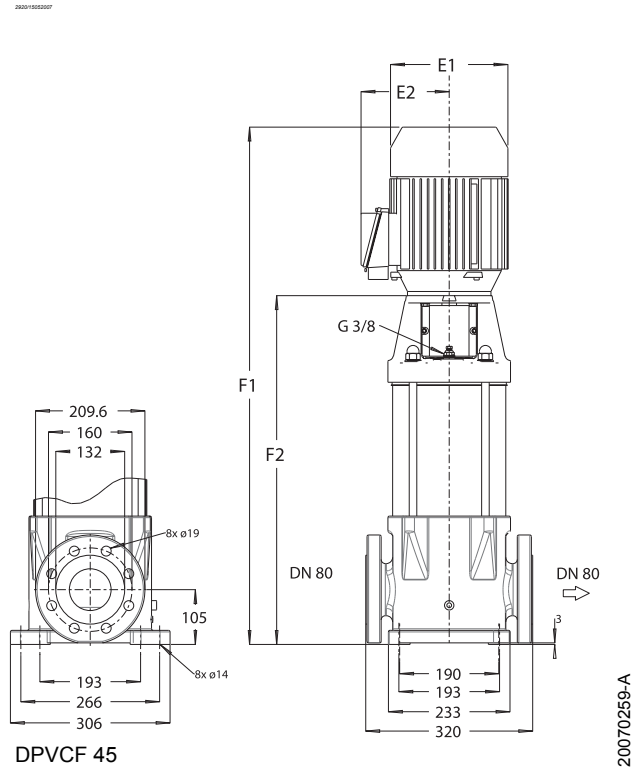
1. Diameter adapter flange 5,5-7,5 kW = 300 mm, 11-22 kW = 350 mm, 30-37 kW = 400 mm

### 3.6 Hydraulic performance DPLHS 6 50 Hz ~2900 1/min

2557



### 3.7 Dimensions and weights DPVCF 45 50 Hz



DPVCF 45 50 Hz		General				
Model	P [kW]	E1 [mm] <sup>1</sup>	E2 [mm]	F1 [mm]	F2 [mm]	Net weight [kg]
45- 20-1	5,5	233	162	855	526	96
45- 20	7,5	233	162	883	526	100
45- 30-1	11	315	206	1182	680	172
45- 30	11	315	206	1182	680	172
45- 40-1	11	315	206	1230	728	174
45- 40	15	315	206	1230	728	188
45- 50-1	15	315	206	1279	777	190
45- 50	18,5	315	206	1323	777	206
45- 60-1	18,5	315	206	1371	825	208
45- 60	22	350	225	1420	825	244
45- 70-1	22	350	225	1469	874	246
45- 70	30	400	290	1524	874	319
45- 80-1	30	400	290	1572	922	322
45- 80	30	400	290	1572	922	322
45- 90-1	30	400	290	1621	971	324
45- 90	37	400	290	1621	971	338
45- 100-1	37	400	290	1669	1019	340
45- 100	37	400	290	1669	1019	340

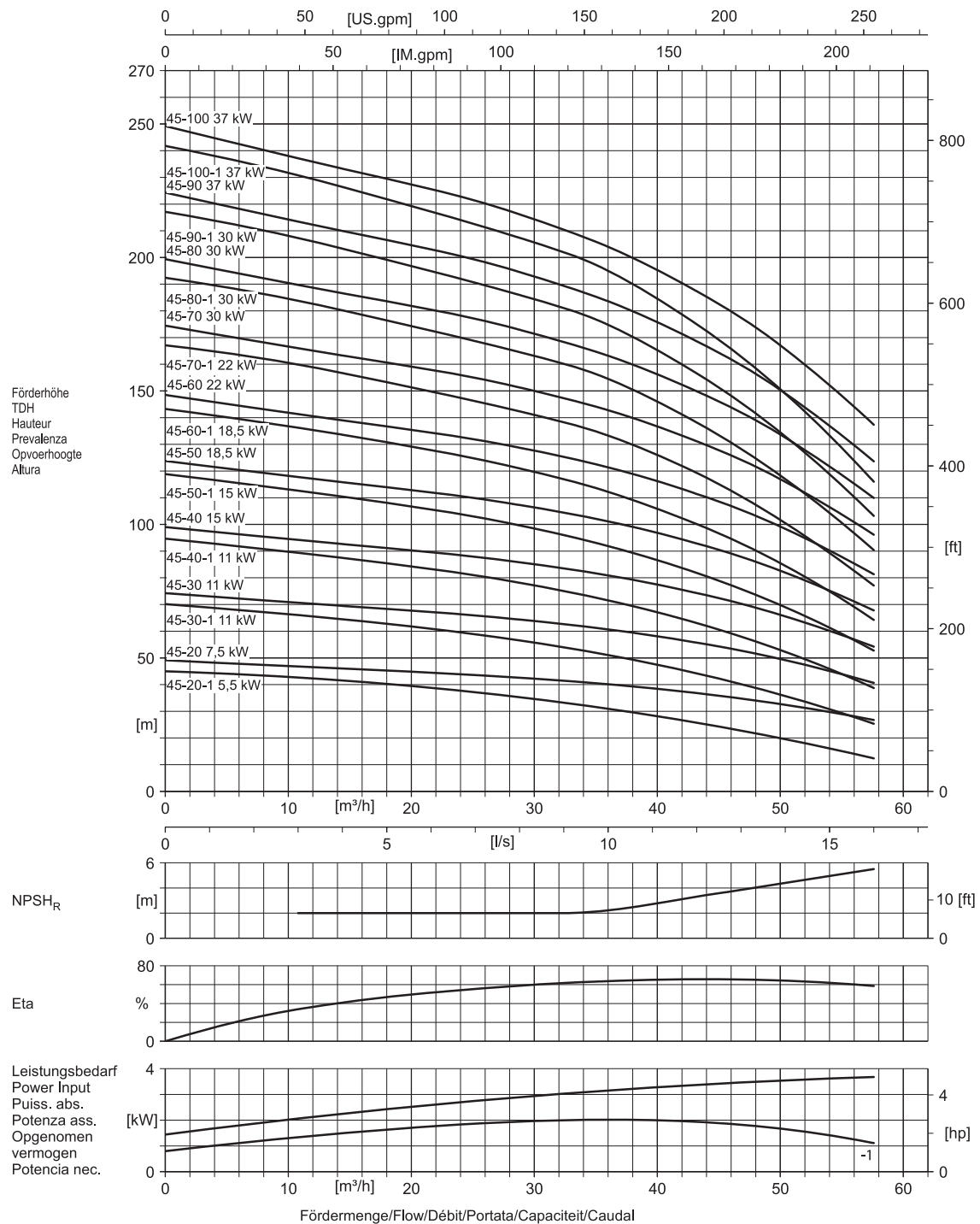
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1. Diameter adapter flange 5,5-7,5 kW = 300 mm, 11-22 kW = 350 mm, 30-37 kW = 400 mm



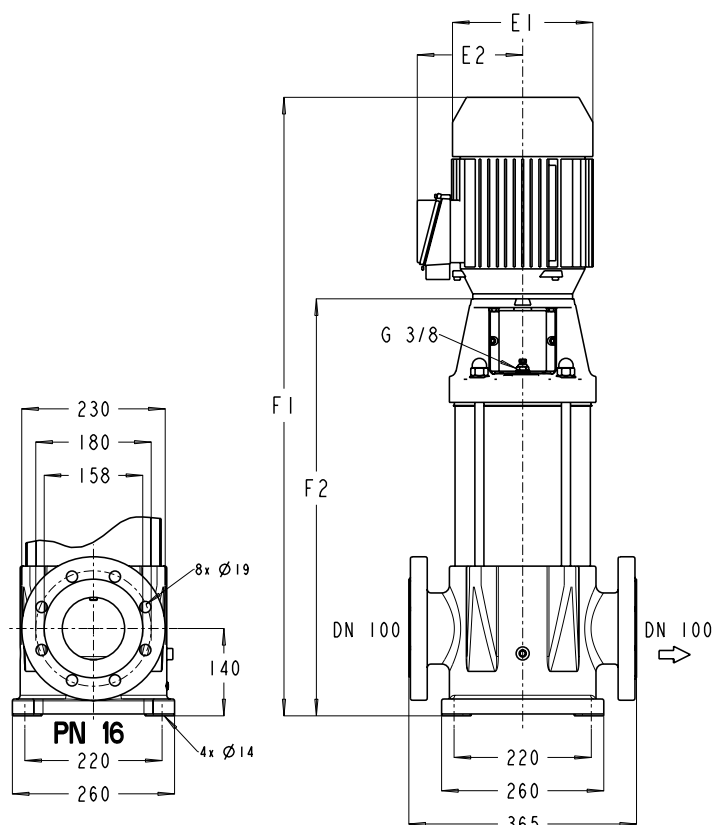
### 3.8 Hydraulic performance DPVCF 45 50 Hz ~2900 1/min

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### 3.9 Dimensions and weights DPVCF 65 50 Hz

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DPVCF 65

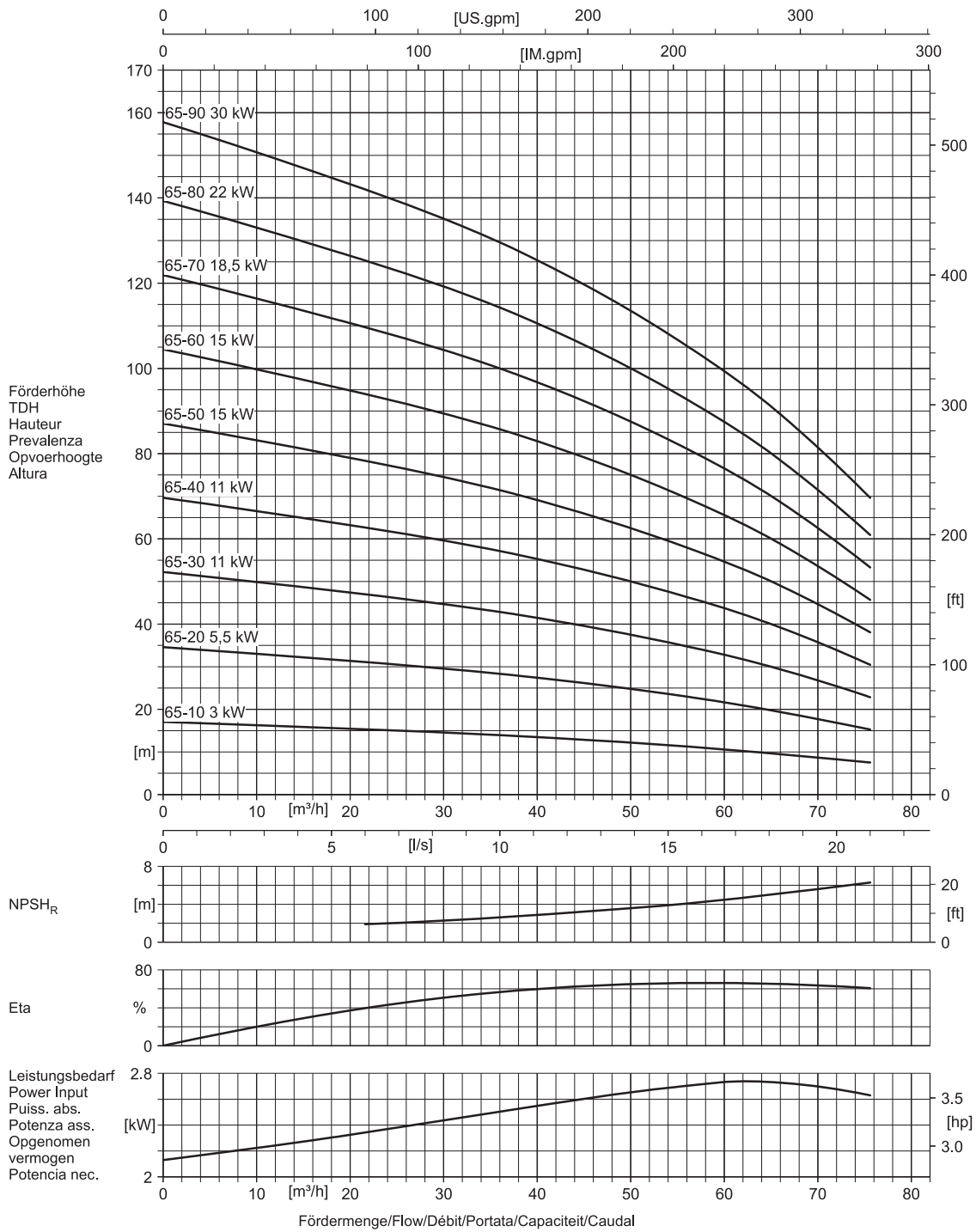
DPVCF 65 50 Hz		General				
Model	P [kW]	E1 [mm] <sup>1</sup>	E2 [mm]	F1 [mm]	F2 [mm]	Net weight [kg]
65- 10	3	194	147	961	645	83
65- 20	5,5	233	162	1083	754	102
65- 30	11	233	162	1200	843	109
65- 40	11	315	206	1464	962	178
65- 50	15	315	206	1553	1051	196
65- 60	15	315	206	1642	1140	199
65- 70	18,5	315	206	1775	1229	218
65- 80	22	350	225	1913	1318	257
65- 90	30	350	225	2002	1407	260

99000286-H

1. Diameter adapter flange 5,5-7,5 kW = 300 mm, 11-22 kW = 350 mm, 30-37 kW = 400 mm

### 3.10 Hydraulic performance DPVCF 65 50 Hz ~2900 1/min

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20050466-B



# 4 Motors and motor options

## 4.1 General

The standard DPmotors are produced conform the latest technical design, and comply with the international standards and EU directives regarding safety measures.

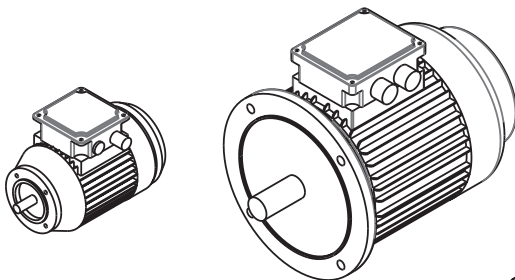
*The motors can be specified as:*

- Standard IE2  $\geq 1,5\text{kW}$
- T.E.F.C. (totally enclosed fan cooled) Squirrel cage.
- AC induction motor.
- Protection IP55.
- Insulation class F.
- Temperature rise class B.
- Duty class S1, maximum 20 starts per hour.
- Noise levels conform IEC 60034-9.
- $> 2,2\text{ kW}$  standard 3 x PTC.

The motors come in 3 different configurations.

Mounting in acc. with IEC60034-7 and dimensions in acc. with IEC 60072-1

03442



V18 flange

V1 flange

20081254

## 4.2 Options

- Standard motors as per above, in **single phase** (1x230V) max 2,2 kW.
- Provided with 10 pole **industrial connector** "Harting stecker" HAN 10, mounted in stead of the motor connection box,  $\leq 7,5\text{kW}$ .
- Provided with **Rain cover** on top of the fan hood.
- For motors  $< 3\text{kW}$  provided with **3 x PTC** and/or **anti condensation heater (1x230V)**.
- Motors from other manufacturers like **Siemens** and VEM in efficiency class IE2.
- Explosion proof, class **Eex e II T3**.
- Explosion proof, class **Eex d II T4**.
- Marine approved variant acc. bureau Veritas

### 4.3 Standard motor data

Table 4: Motor data 1 and 3 phase, 2p 50 Hz

Article number	Rated power output [kW]	Rated Voltage [V]	Rated current [A]	Starting current Ia/In	Cos Phi	Tolerance rated voltage	Rated speed [rpm]	Motor efficiency	Sound pressure [dB(A)]	Cable gland	Max. starts per hour
3700000022	2,2	1x230	13,04	4,8	0,95	10%	2800	77	58	1xM20x1,5	20
3710011022	2,2	230/400	8,2/4,7	7,3	0,81	10%	2870	83,5	56	1xM20x1,5	30
3710111030	3	230/400	10,2/6,2	8,3	0,83	10%	2900	84,6	58	2xM20x1,5	30
3710112030	3	400/690	6,2/3,7	8,3	0,83	10%	2900	84,6	58	2xM20x1,5	30
3710111040	4	230/400	13,4/7,7	8,5	0,87	10%	2915	86,3	59	2xM20x1,5	30
3710112040	4	400/690	7,7/4,5	8,5	0,87	10%	2915	86,3	59	2xM20x1,5	30
3710111055	5,5	230/400	17,5/10,1	8,8	0,9	10%	2930	87,5	64	2xM25x1,5	20
3710112055	5,5	400/690	10,1/5,9	8,8	0,9	10%	2930	87,5	64	2xM25x1,5	20
3710111075	7,5	230/400	22,9/13,2	8,5	0,92	10%	2920	88,6	64	2xM25x1,5	20
3710112075	7,5	400/690	13,2/7,7	8,5	0,92	10%	2920	88,6	64	2xM25x1,5	20
3710111110	11	230/400	36,5/21,0	7,8	0,84	10%	2950	90	71	2xM32x1,5	15
3710112110	11	400/690	21,0/12,2	7,8	0,84	10%	2950	90	71	2xM32x1,5	15
3710111150	15	230/400	49,0/28,2	7,6	0,85	10%	2945	90,3	70	2xM32x1,5	15
3710112150	15	400/690	28,2/16,3	7,6	0,85	10%	2945	90,3	70	2xM32x1,5	15
3710111185	18,5	230/400	58,5/33,6	9,3	0,87	10%	2950	91,3	73	2xM32x1,5	15
3710112185	18,5	400/690	33,6/16,5	9,3	0,87	10%	2950	91,3	73	2xM32x1,5	15
3710111220	22	230/400	68,7/39,5	7,5	0,88	10%	2945	91,3	75	2xM32x1,5	12
3710112220	22	400/690	39,5/22,4	7,5	0,88	10%	2945	91,3	75	2xM32x1,5	12
3700111300	30	230/400	89,7/51,8	7,5	0,91	10%	2955	92,9	80	2xM50x1,5	12
3700112300	30	400/690	51,8/29,9	7,5	0,91	10%	2955	92,9	80	2xM50x1,5	12
3700111370	37	230/400	110/63,5	7,5	0,91	10%	2957	93,3	80	2xM50x1,5	20
3700112370	37	400/690	63,5/36,7	7,5	0,91	10%	2950	93,3	80	2xM50x1,5	12
3700111450	45	230/400	131,6/76	7,5	0,91	10%	2969	93,7	80	2xM50x1,5	20
3700112450	45	400/690	76/43,9	7,5	0,91	10%	2969	93,7	80	2xM50x1,5	12



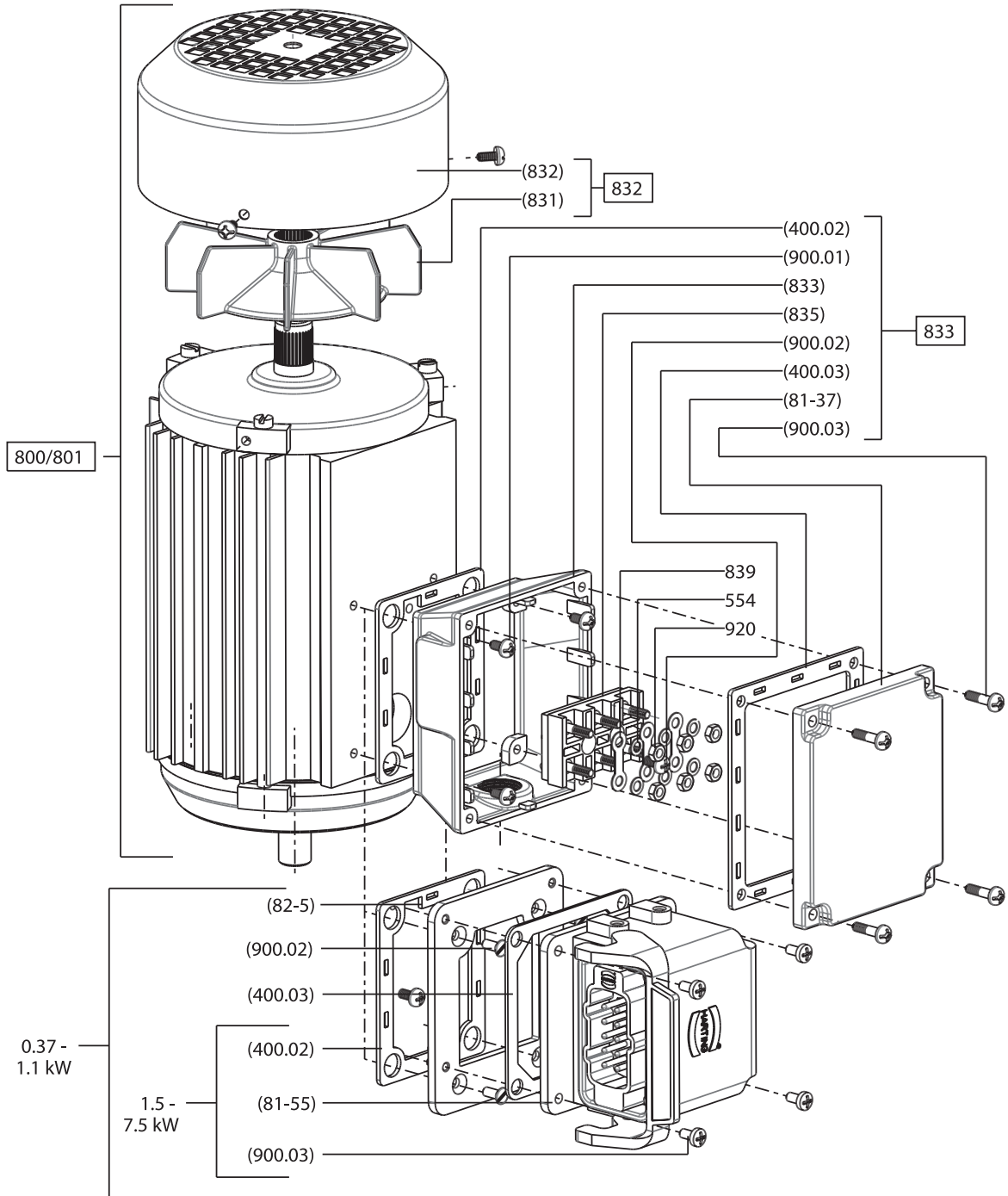


Figure 4: Motor exploded view

# 5 Materials

## 5.1 Overview of materials

Pos. nr.	Description	DPVF	DPVSF	DPVCF	DPLHS
101	Pump casing	1.4301	1.4404	JL 1040	1.4408
108	Stage casing	1.4301	1.4404	1.4301	1.4404
160	Cover	1.4301	1.4404	1.4301	1.4404
171	Diffuser	-	1.4404	1.4301	-
10-6	Pump shroud	1.4301	1.4404	1.4301	1.4404
210	Shaft	1.4305	1.4401	1.4305	1.4401
230	Impeller	1.4301	1.4404	1.4301	1.4404
341	Motor stool	JL 1040			1.4408
412	O-ring	EPDM	Viton	EPDM E425	Viton
525	Spacer sleeve	1.4301	1.4401	1.4301	1.4404
529	Bearing sleeve	Tungsten-carbide			
<sup>1)</sup>	Bearing	Ceramic			
890	Base plate	JL 1040			-
903	Vent plug	Brass	AISI316		AISI316
905	Tie bolt	1.4057			
913	Vent plug			AISI913	
920	Nut	1.4301	1.4404	1.4301	1.4404
932	Circlip	1.4571			




1. The bearing has no pos.nr. because it is a fixed part of the stage casing (108) or diffuser (171)

## 5.2 Materials conversion

Material	Description	Code and material nr.	Standard	ASTM / AISI <sup>1</sup>
JL 1040	Cast iron	GJL-250	EN 1561	A48:40B
1.4301	Chromium-nickel steel	X5CrNi18-10	EN 10088	A276:304
1.4404	Chromium-nickel-molybdenum steel	X2CrNiMo 17-12-2	EN 10088	A276:316L
1.4408	Chromium-nickel-molybdenum cast steel	GX5CrNiMo 19-11-2	EN 10213	A743CF8M
1.4571	Chromium-nickel-molybdenum steel	X6CrNiMoTi17-12-2	EN 10088	A276:316Ti
1.4057	Chromium-nickel steel	X17CrNi16-2--QT800	EN 10088-3	A276:431
1.4305	Chromium-nickel steel	X8CrNiS 18-9	EN 10088	A276:303
1.4401	Chromium-nickel-molybdenum steel	X5CrNiMo 17-12-2	EN 10088	A276:316
1.4308	Chromium-nickel cast steel	GX5CrNi 19-10	EN 10283	A743:CF8
1.4460	Chromium-nickel-molybdenum steel	X3CrNiMoN 27 5 2	EN 10088	--:329

1. Note: The indication of the material designations to ASTM / AISI is not binding




### 5.3 Mechanical seal specifications

Pump series	DPV(F)	DPVS(F)	DPVCF	DPVF 45 > 7,5 kW DPVF 65	DPVSF 45 > 7,5 kW DPVSF 65	DPVCF 45 > 7,5 kW DPVCF 65	DPLHS 6
Mechanical seal type							
Max. pressure	1000 kPa	1000 kPa		1000 kPa	1000 kPa		
Dynamic part	Carbon	Carbon		Carbon	Carbon		
Static part	Silicon carbide	Silicon carbide		Silicon carbide	Silicon carbide		
Elastomer	EPDM	Viton		EPDM	Viton		
Max. pressure	2500 kPa	2500 kPa	2500 kPa	2500 kPa	2500 kPa	2500 kPa	
Dynamic part	Silicon carbide	Silicon carbide	Tungsten carbide	Silicon carbide	Silicon carbide	Tungsten carbide	
Static part	Carbon	Carbon	Carbon	Carbon	Carbon	Carbon	
Elastomer	EPDM	Viton	EPDM E425	EPDM	Viton	EPDM E425	
Max. pressure							4000 kPa
Dynamic part							Carbon
Static part							Tungsten carbide
Elastomer							Viton





## 6 Connections

### 6.1 Suction and discharge connections (standard G and DIN)

Pump model key	DPV(S)F	DPVCF	DPLHS
			
Connection	Round sliding flange	Round flange ridged cast to pump casing	Round flange ridged cast to pump casing
Norm	DIN EN 1092-2 PN 25	DIN EN 1092-2 PN25	DIN EN 1092-2 PN 40
Pressure class	PN 25		PN 40
DPV(S/C)F 45	DN 80	DN 80	-
DPV(S/C)F 65	DN 100 <sup>1</sup>	DN 100	-
DPLHS 6	-	-	DN 32


1. PN 16

### 6.2 Suction and discharge connections (optional ASME)

Pump model key	DPV(S)F	DPLHS
		
Connection	Round sliding flange	Round flange ridged cast to pump casing
Norm	ASME B 16.1 cl.250	ASME B 16.5 cl.600
Pressure class		PN40
DPV(S)F 45	3"	-
DPV(S)F 65	4" <sup>1</sup>	-
DPLHS 6	-	1 1/4"

1. class 125

### 6.3 Suction and discharge connections (optional Rc and JIS)

Pump model key	DPV(S)F
	
Connection	<b>Round sliding flange</b>
Norm	<b>JIS B2238</b>
Pressure class	16 K
DPV(S)F 45	JIS 80
DPV(S)F 65	JIS 100

# 7 Factory options

## 7.1 Factory options

Description:	Applicable model:	Standard:	Options
<b>Sealing:</b>			
Sleeve and stage O-rings:	DPV	EPDM	Viton
	DPVS	Viton	HNBR
			E425 EPDM EPDM
Mechanical seal:	DPV	Ca/SiC/EPDM SiC/Ca/EPDM	Ca/SiC/EPDM SiC/Ca/EPDM
	DPVS	Ca/SiC/Viton SiC/Ca/Viton	Ca/SiC/Viton SiC/Ca/Viton
	DPVCF	TuC/Ca/EPDM	TuC/Ca/EPDM SiC/SiC/EPDM SiC/SiC/Viton TuC/TuC/Viton TuC/TuC/HNBR
<b>Mechanical:</b>			
Vent and drain plugs AISI 316	DPV	Vent and drain plugs brass	Vent and drain plugs AISI 316
Safety vent plug AISI 316	All	Standard vent plug	Safety vent plug AISI 316
Color finish	All	Pump and motor RAL 5002	RAL 3000 (fire red)
De-staging	All	Intermediate impeller stage	Stage without impeller
JIS flanges	DPVCF	Round flange DIN PN 25	Round flange JIS PN 25
ASME flanges	DPVCF	Round flange DIN PN 25	Round flange ASME B 16.1 cl. 250
<b>Motor:</b>			
Anti condensation heater	3 phase 2,2 kW - 37 kW	None	With anti condensation heater 1~230 V
Rain cover	3 phase 2,2 kW - 37 kW	None	Rain cover on fan hood
PTC thermistors	3 phase 2,2 kW	None	With 3 PTC thermistors
Harting stecker	3 phase 2,2 kW - 37 kW	None	Cable connection provided with 10-pole Harting stecker
Connection box position	2,2 kW - 37 kW	9h	0h, 3h, 6h
Increased motor power	2,2 kW - 30 kW	Standard motor power	One step higher motor power
Enlarged motor lantern	2,2 kW - 30 kW	Standard motor lantern	Motor lantern to fit one step higher motorpower
Winding configuration	3 phase 2,2 kW - 2,2 kW	230 / 400 V	400 / 692 V
	3 phase 3 kW - 37 kW	400 / 692 V	230 / 400 V
Winding Voltage	3 phase 2,2 kW - 37 kW	400 V Y or Δ	500 V Y or Δ



# 8 Accessories

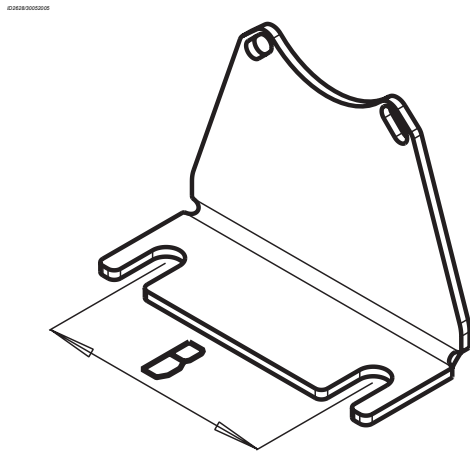
## 8.1 Horizontal mounting kit

In special applications it could be a solution to mount the pump in a horizontal position. Although the pump is designed for vertical positioning the hydraulic parts of the pump are also capable of functioning in a horizontal position. This option is limited by the motor rating. The **motors of 11kW** and above are equipped with a co-axial bearing which is **not suitable for horizontal positioning**.

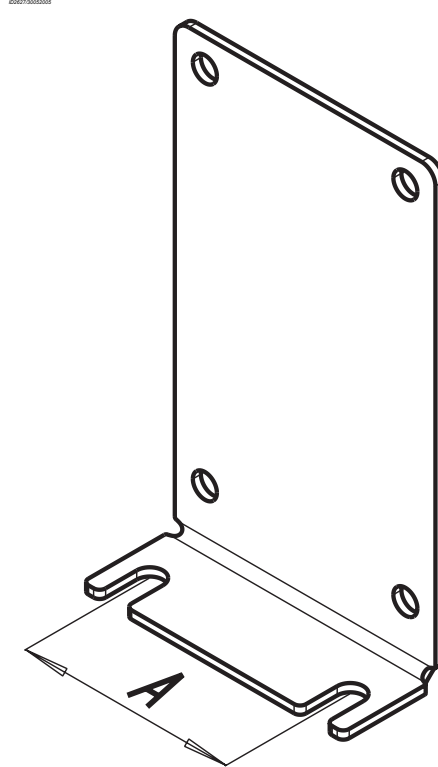
To ensure a proper and stable horizontal mounting position for the pump, stainless steel AISI 304 support frames are available. To mount the support frames, bolts up to a maximum of M12 can be used.

The horizontal mounting kit includes the following parts:

- Pump bracket support
- Motor flange support
- 4 bolts M12
- 4 washers 12mm
- 4 nuts M12



Motor flange support



Pump bracket support

20050451-F

### 8.1.1 Dimensions of pumps fitted with horizontal mounting kit

Dimensions are related to the dimensions of the complete pump in standard vertical position and are mentioned in [mm].

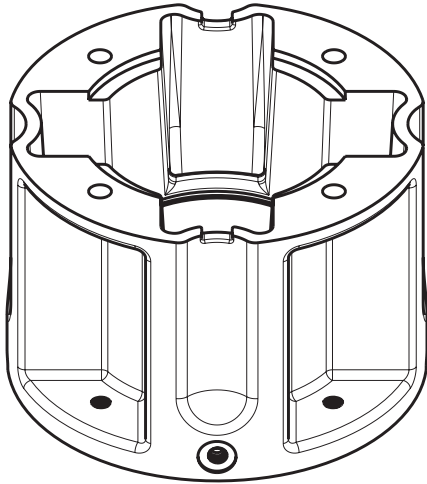
DPV(S)(C)F 45		D = 137					
DPV(S)(C)F 65		D = 172					
Motor [kW]	Art. nr.	C	H	A	B	Weight [kg]	
2,2	18707041	F2+47	170	210	180	4,00	
3	4	18707042					F2+39
5,5	7,5	18707043					F2-17

20050451-F

20050451-F

## 8.2 Thrust bearing housing

20050227-B



Thrust bearing housing

20050227-B

The standard DP-Pumps motors are specially designed to drive the pump. When a standard IEC or NEMA norm motor has to be installed (or a special motor to fulfill the applications requirement, like explosion proof, high efficiency) a special bearing housing must be installed to relieve the motor of the axial force created by the pump.



### ATTENTION

Only a motor with a standard key can be installed with a thrust bearing housing.



### ATTENTION

There is no need to change the motor stool of the pump. The bearing flange can be mounted on the standard motor stool of the pump.

### 8.2.1 Dimensions and weights.

The total height increase of the pump will be 113,5 mm / 4.47 inch. The weight of the thrust bearing housing kits are given in the table below:

Table 5: weight of the thrust bearing housings kits

Frame size	Motor-shaft	Kit art. nr.	Weight [kg]	Weight [lbs]
132	38	18708020	7,97	17.57
160	42	18708021	8,25	18.19
180	48	18708022	9,30	20.50
200	55	18708023	9,44	20.81

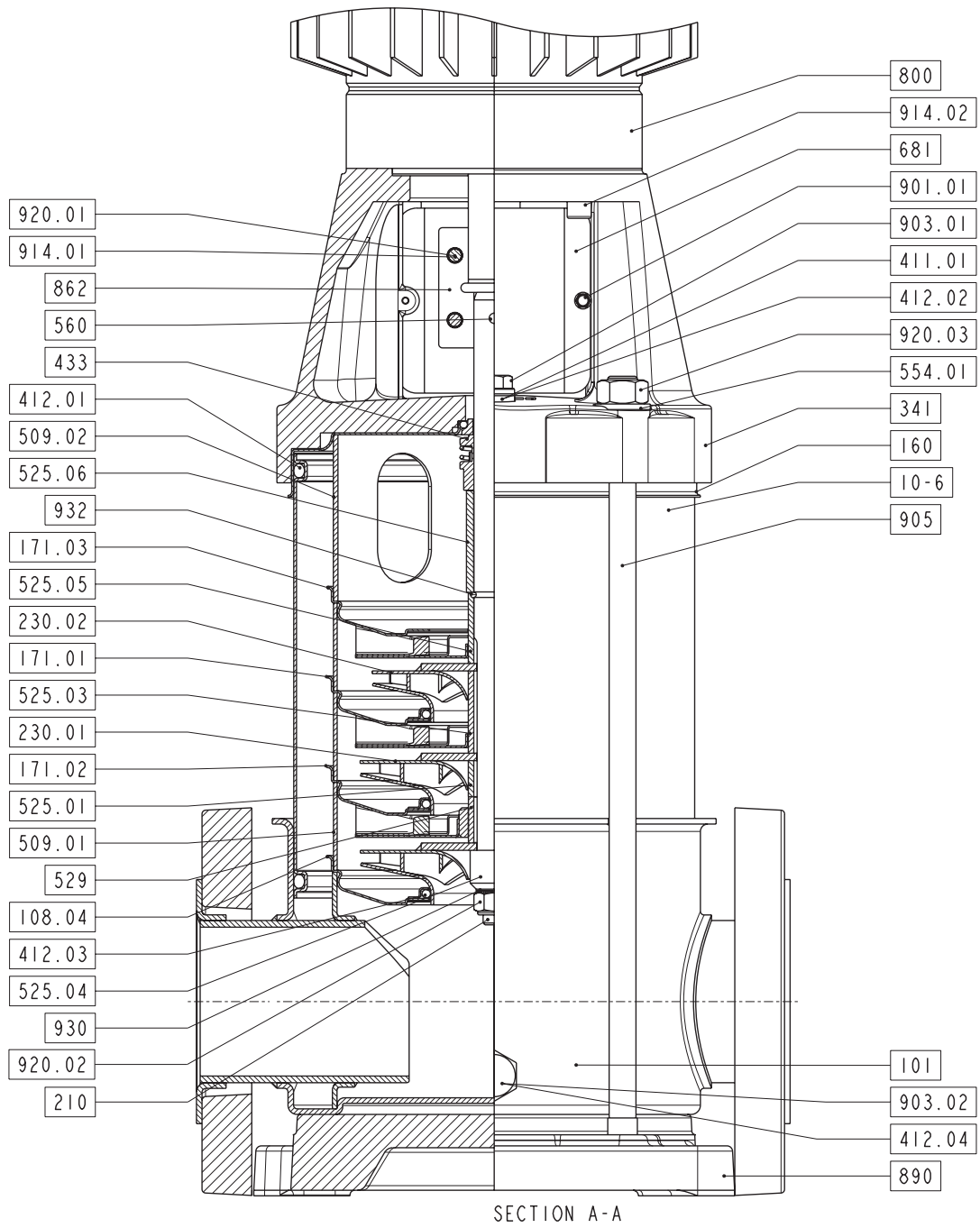
# 9 Sectional drawings

## 9.1 Parts list

Number (ZN)	Description:
101	Pump casing
108	Stage casing
160	Cover
171	Diffuser
210	Shaft
230	Impeller
341	Motor stool
400	Gasket
411	Joint ring
412	O-ring
433	Mechanical seal
471	Seal cover
500	Ring
509	Intermediate ring
525	Spacer sleeve
525.08	Spacer sleeve
529	Bearing sleeve
554	Washer
560	Pin
681	Coupling guard
722	Taper piece, flanged
723	Flange
800	Motor
801	Flanged motor
802	Motor for close coupling
831	Fan impeller
832	Fan hood
833	Terminal box
835	Terminal board
837	Condenser
862	Coupling shell
890	Baseplate fabricated or cast
900	Screw
901	Hexagon head bolt
903	Screwed plug
904	Grub screw
905	Tie bolt
913	Vent plug
914	Hexagon socket head cap scr.
920	Nut
930	Safety device
932	Circlip
10-6	Pump shroud
81-37	Terminal box coverplate

## 9.2 Sectional drawing DPV(S)F 45

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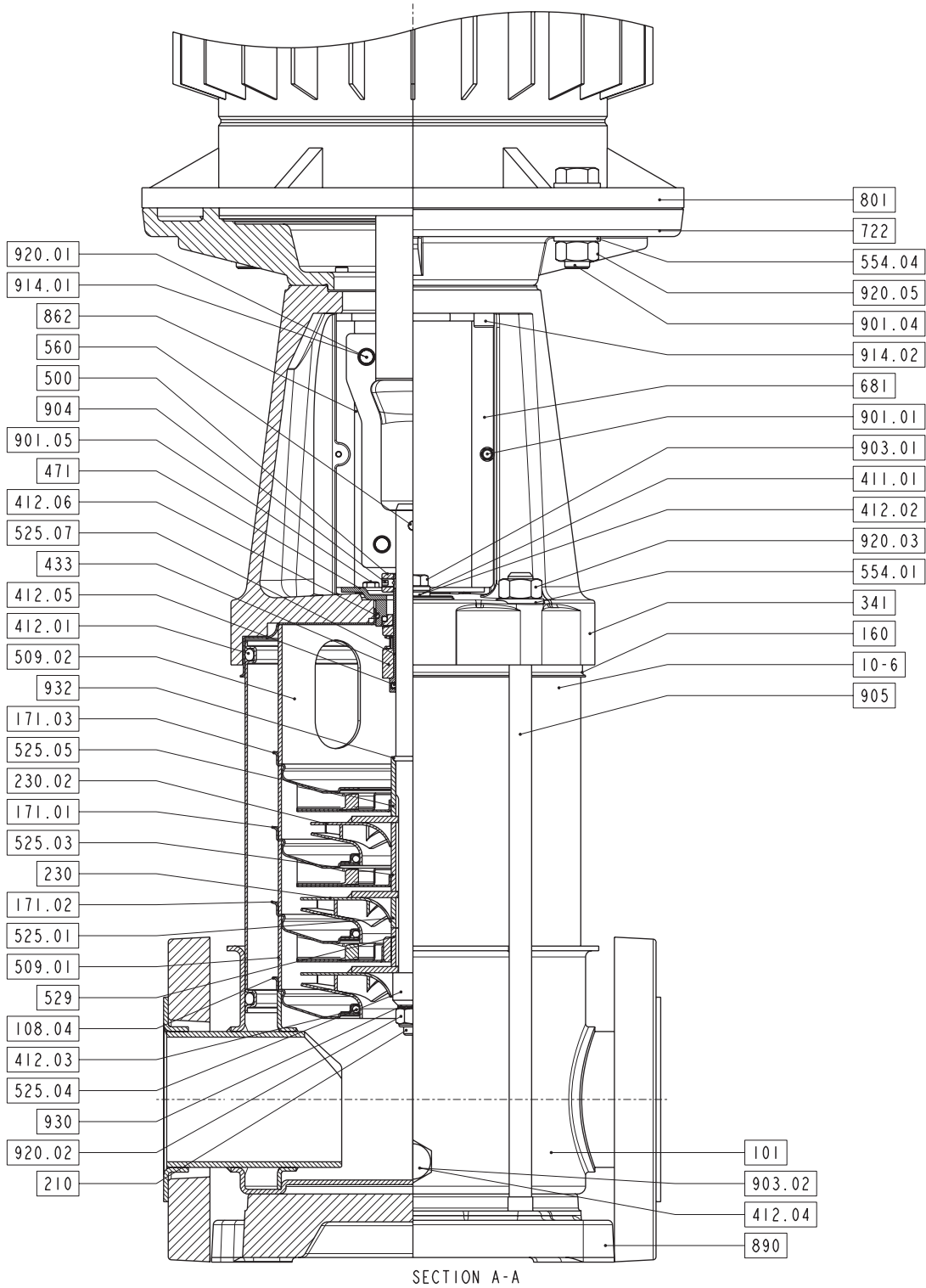


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### 9.3 Sectional drawing DPV(S)F 45 with cartridge seal

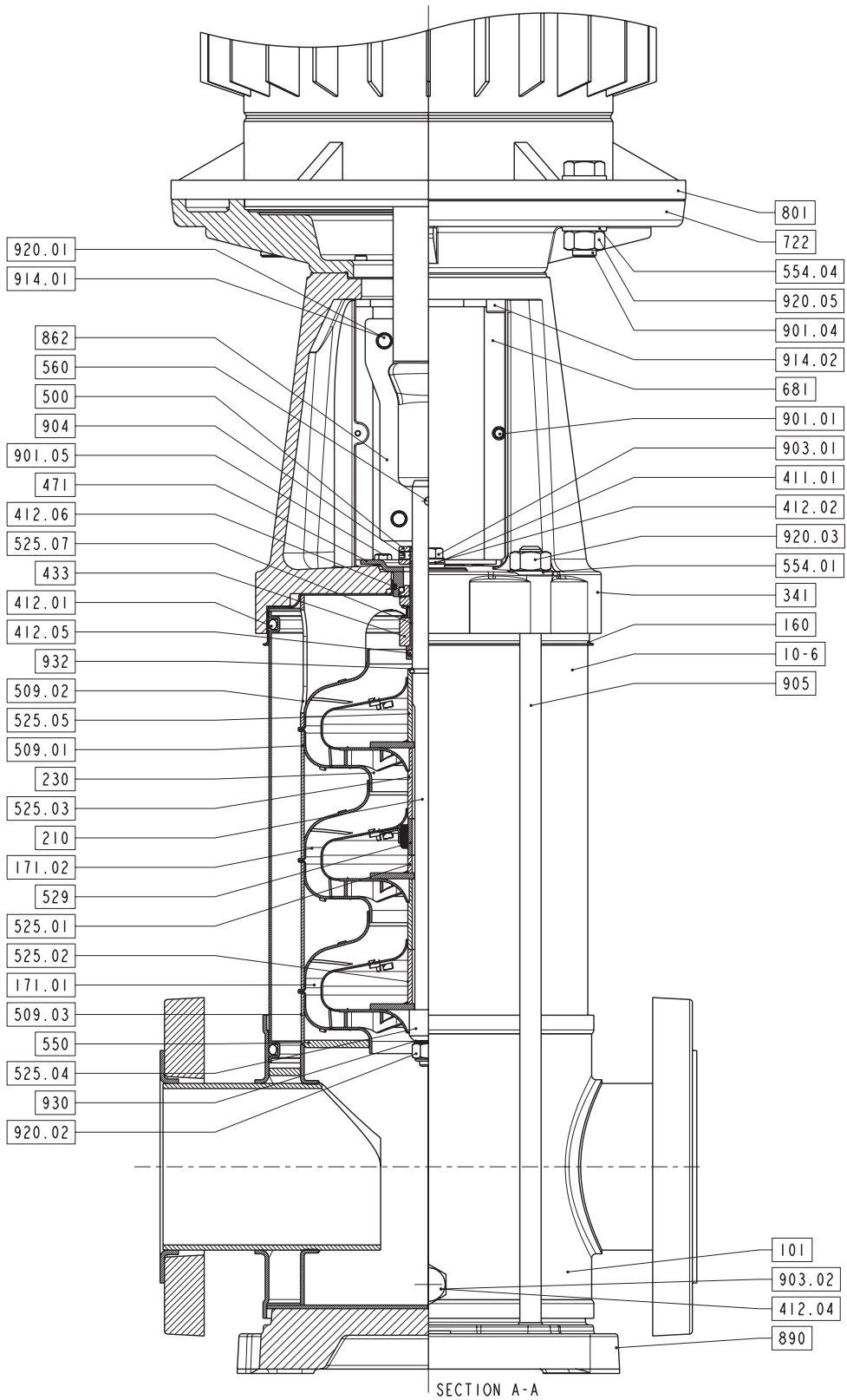
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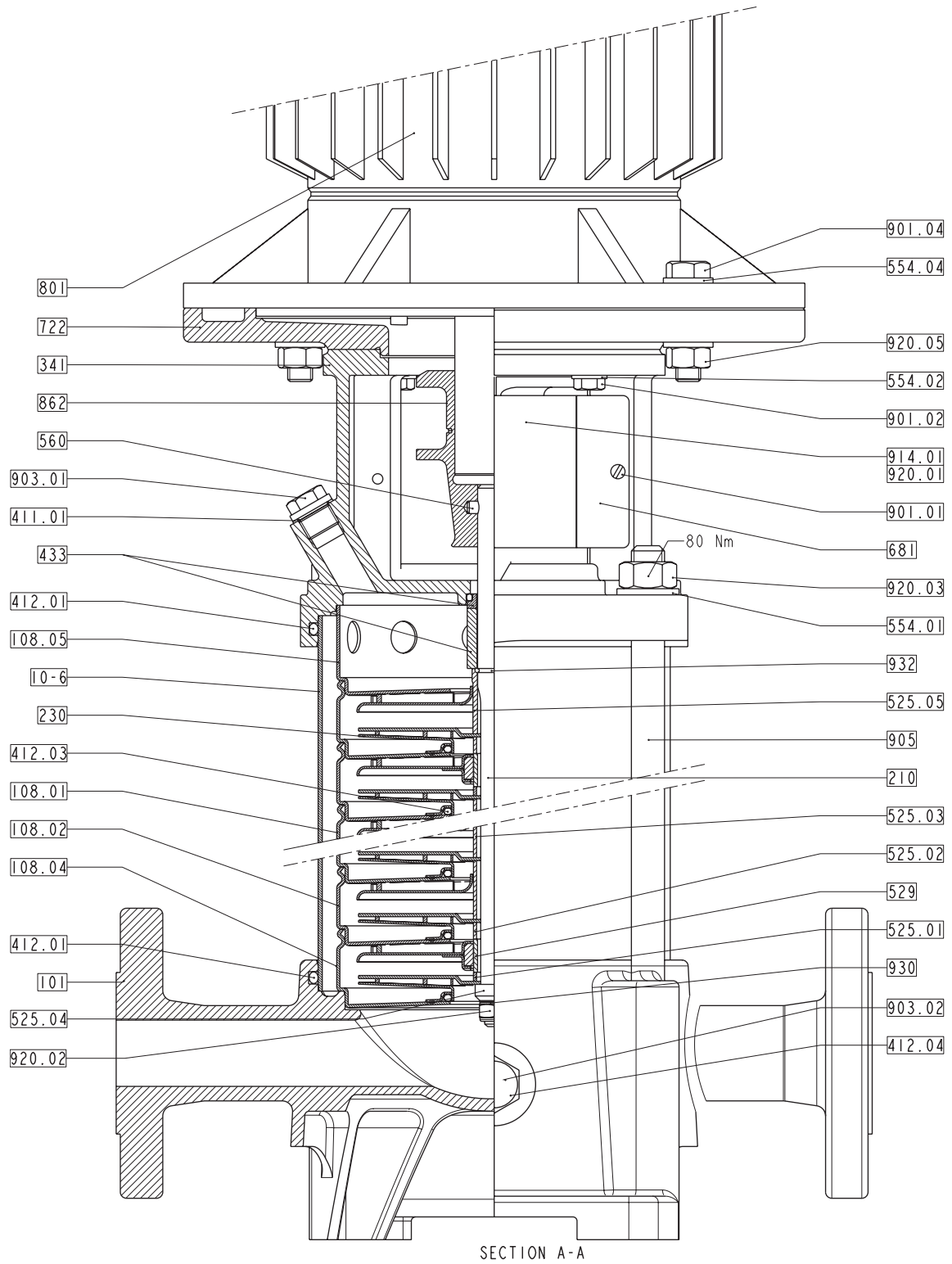
## 9.4 Sectional drawing DPV(S)F 65

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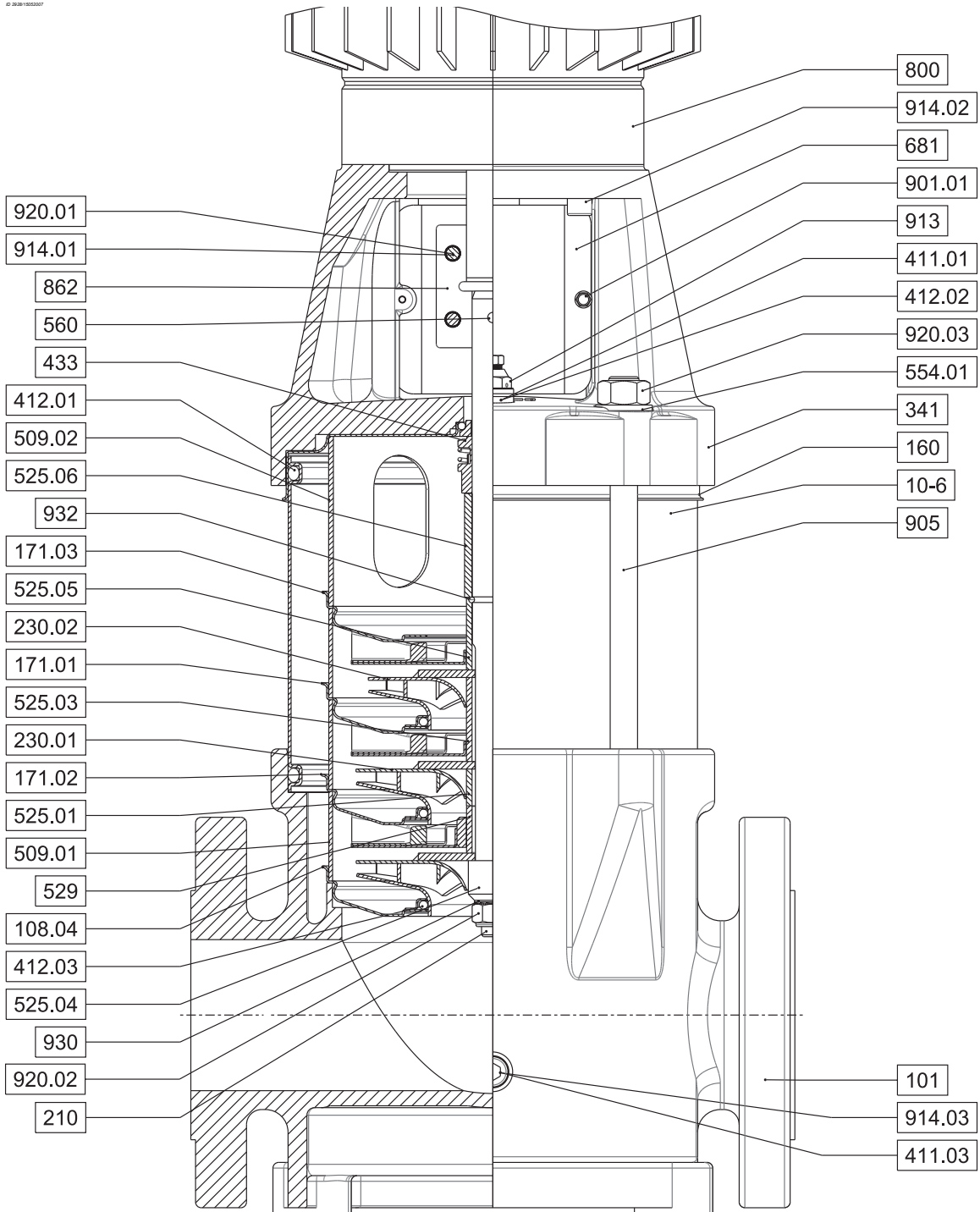
# 9.5 Sectional drawing DPLHS 6

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## 9.6 Sectional drawing DPVCF 45

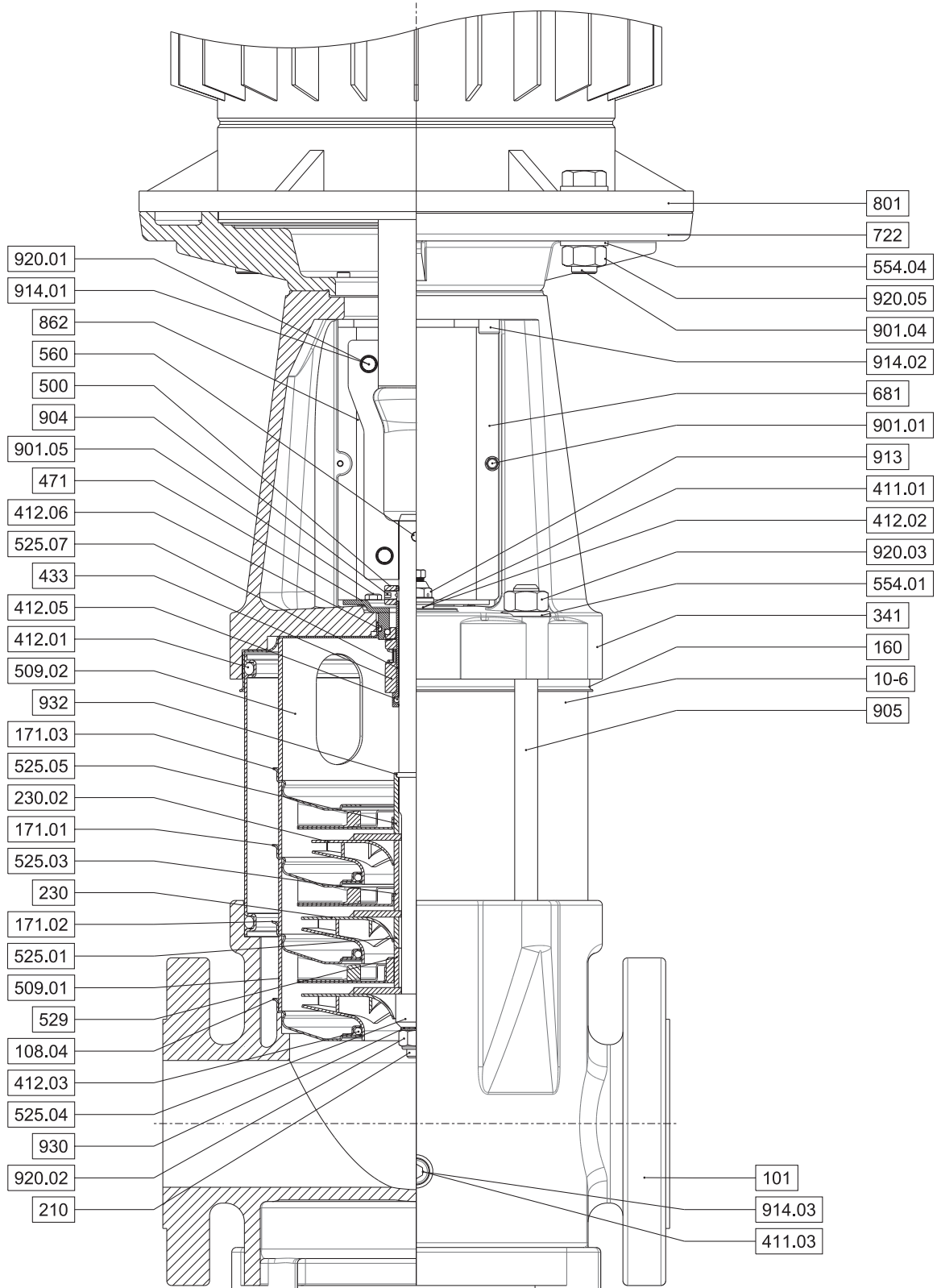
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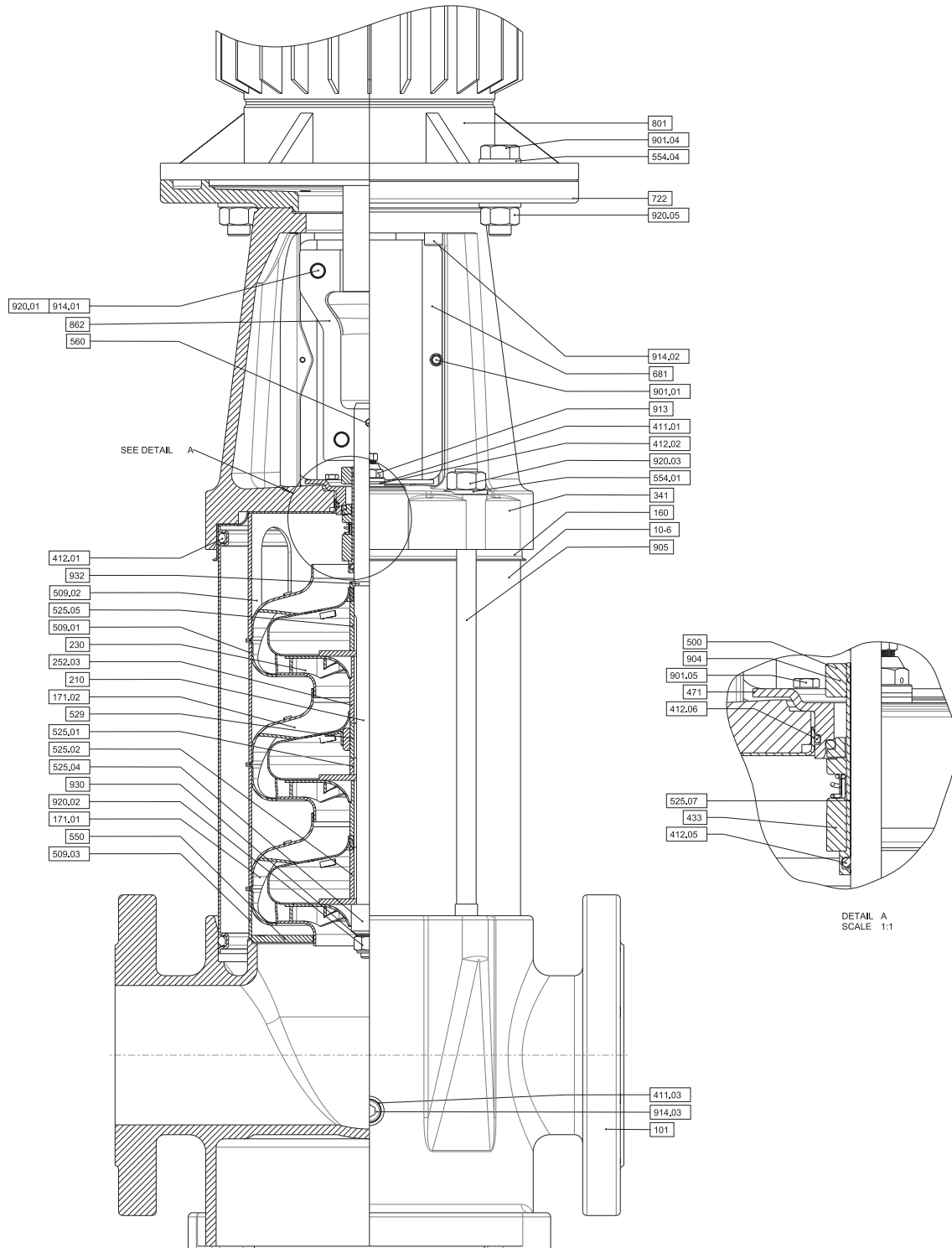
## 9.7 Sectional drawing DPVCF 45 with cartridge seal

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# 9.8 Sectional drawing DPVCF 65

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20040437-D







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