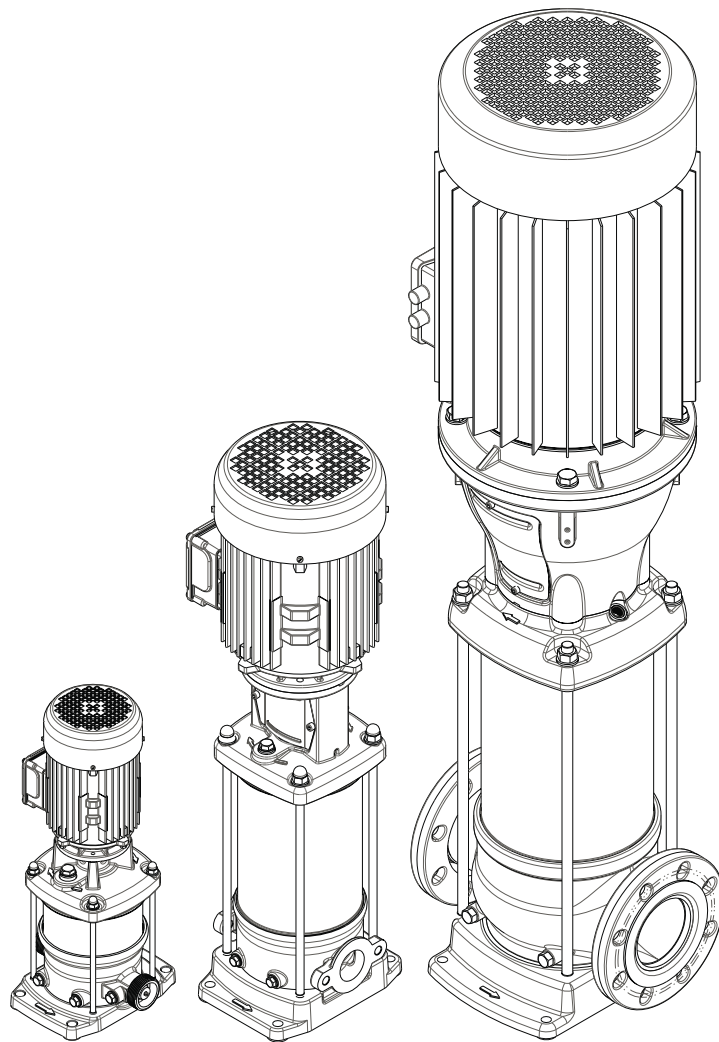


# Technical Data 50 Hz DIN/IEC

Vertical centrifugal pumps  
series: DPV 2, DPV 4, DPV 6, DPV 10, DPV 15, DPV 85  
Design Version B





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# 1 Pump introduction

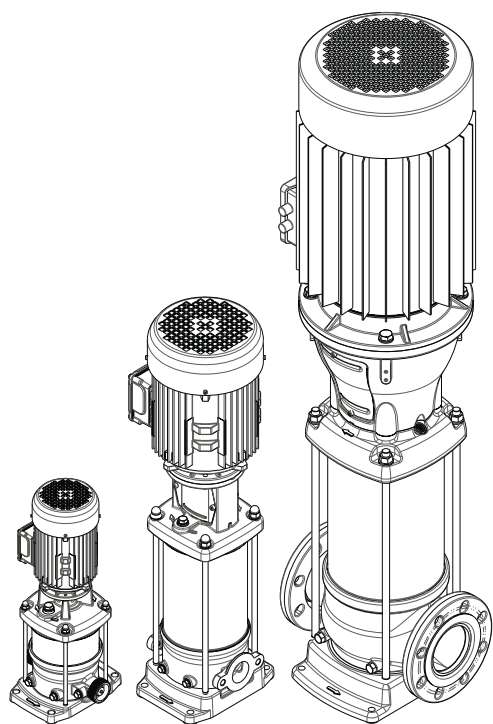
## 1.1 General

The vertical, single or multistage centrifugal pump series are designed for pumping clean, or lightly aggressive, watery mediums.

Suction and discharge of the pump are in-line, making the pump easy to install.

The hydraulic assembly is driven by an electric motor. All hydraulic parts of the pump are made of stainless steel.

The vertical, multistage centrifugal DPV pumps are produced by DP-Pumps.



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DPV2,4,6 B    DPV10,15 B    DPV 85 B

## 1.2 Model key

Table 1: Model key Example DPVSF85/3-1 B

	DP	VS	F	85	/3	-1	B	
Label	DP							Product Label
Material/Construction		VC						Cast Iron pump foot and top bracket, hydraulics 1.4301 / AISI 304
		V						All wetted parts Stainless Steel 1.4301 / AISI 304
		VM						All wetted parts Stainless Steel 1.4301 / AISI 304 with closed coupled motor
		VS						All wetted parts Stainless Steel 1.4401 / AISI 316
Connections			E					Male thread (with non-return valve insert)
								Oval flange with female thread
			F					Round flange
			V					Victaulic connections
			T					Tri-clamp connections
				85				Capacity in m <sup>3</sup> /h at Q <sub>opt</sub>
					/3			Number of stages
					/3	-1		Number of stages of which one stage with reduced head
							B	Design version

### 1.3 Operation

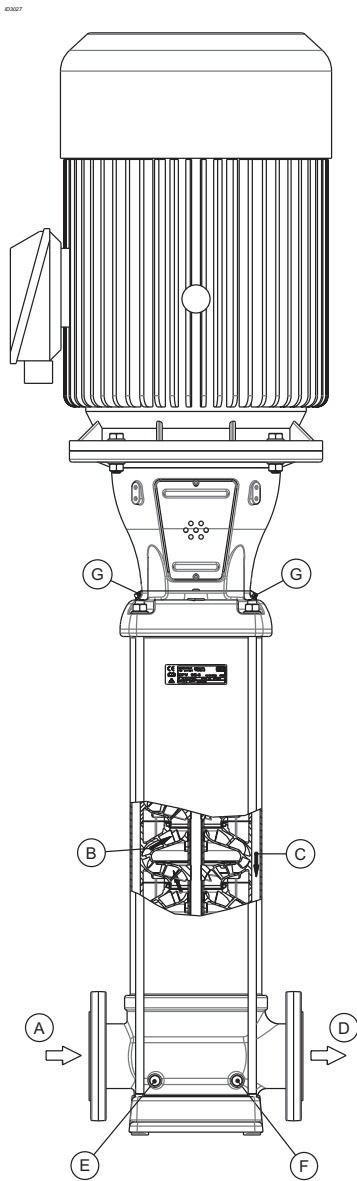


Figure 1: DPVF 85

During centrifugal operation of the pump a negative pressure is created at the inlet of the impeller. This negative pressure enables the medium to enter the pump at the suction connection (A). Every stage (B) consists of an impeller and diffuser. The passage of this stage determines the capacity of the pump. The diameter of the stages is related to the centrifugal forces and its "stage pressure": the more stages, the more pressure.

This total capacity and raised pressure will be guided to the outside of the pump, between the pump stages and the outer sleeve (C) and the medium will leave the pump at the discharge connection (D).

### 1.4 Measuring, draining and venting

The pump is provided with plugs for measuring, draining and venting.

Connection (E) is meant to drain the inlet part of the pump. Or to measure the inlet / suction pressure using a G ¼ connection.

Connection (F) is meant to drain the outlet part of the pump. Or to measure the discharge pressure using a G ¼ connection.

Connections (G) are meant to vent the pump system when the pump is not in operation. Or to measure the discharge pressure of the pump using a G 3/8 connection.

### 1.5 Working range

The working range is depending on the application and a combination of pressure and temperature. For specific and detailed limits advice the working ranges are described in the chapter 1.8 Modular selection. The overall working range of the pumps can be summarised as follows:

Table 2: Specification of the working range

Pump type	DPV	note
Ambient temperature [°C]	-20 up to 40	<sup>1</sup>
Minimum inlet pressure	NPSH <sub>req.</sub> + 1 m	
Viscosity [cSt]	1-100	<sup>2</sup>
Density [kg/m <sup>3</sup> ]	1000-2500	<sup>2</sup>
Cooling	forced motor cooling	<sup>3</sup>
Minimum frequency [Hz]	10	
Maximum frequency [Hz]	60	<sup>4</sup>
Allowable size of solids pumped	5µm to 1mm	

1. If the ambient temperature exceeds the above value or the motor is located more than 1000 m above sea level, the motor cooling is less effective and could require an adapted motor power. See table 9: Motor load dep. sea level or amb. temp or please contact your supplier for more detailed advice.
2. Deviation in viscosity and/or density could require an adapted motor power. Please contact your supplier for more detailed advice.
3. The free space above the motor cooling fan must be at least 1/4 of the diameter of the inlet of the cooling fan in order to have a sufficient flow of (cooling) air.

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4. Pumps that are intended for 50 Hz operation, may not be connected to 60 Hz power supply.

### 1.5.1 Minimum capacity

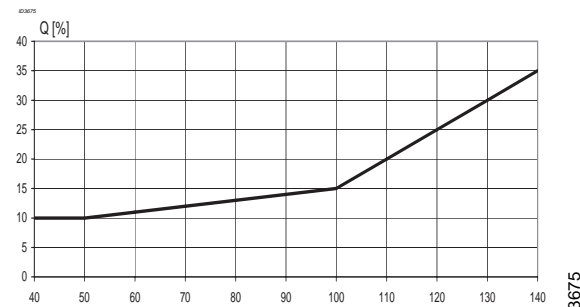
For minimum capacity at medium temperature of 20 °C, see table 3 Minimum capacity (Q<sub>min</sub>); for higher temperatures, see table 4 Minimum capacity vs. temperature (in % of Q optimum).

To prevent the pump from overheating, gathering gas, cavitation etc. a minimum capacity has to be secured. The minimum capacity corresponds to all percentage of the optimum flow Q<sub>opt</sub> in relation to the temperature of the liquid pumped.

Table 3: Minimum capacity (Q<sub>min</sub>)

size	Q <sub>min</sub> [m <sup>3</sup> /h]			
	50 Hz		60 Hz	
	2 pole	4 pole	2 pole	4 pole
2	0.2		0.2	
4	0.4		0.5	
6	0.6		0.8	
10	1.1	0.5	1.3	0.6
15	1.6	0.8	2.0	1.0
85	8.5	4.3	10.2	5.1

Table 4: Minimum capacity vs. temperature (in % of Q optimum)



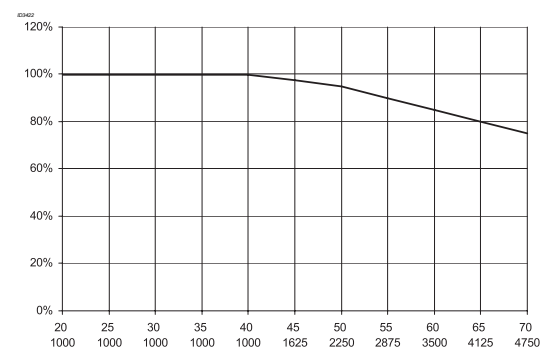
### 1.5.2 Ambient temperature and higher altitude

If the ambient temperature exceeds the above value or the motor is located more than 1000 m above sea level, the motor cooling is less effective and could require an adapted motor power. See Table: 6 Ambient Temperature [°C] above sea level [m] or please contact your supplier for more detailed advice.

Table 5: Ambient temperature [°C]

Ambient temperature [°C]	Above sea level [m]	motor load
20	1000	100%
25	1000	100%
30	1000	100%
35	1000	100%
40	1000	100%
45	1625	98%
50	2250	95%
55	2875	90%
60	3500	85%
65	4125	80%
70	4750	75%

Table 6: Ambient Temperature [°C] above sea level [m]



3422/09112009

## 1.6 Basic material variants

Table 7: Basic material variants

Model	Hydraulic	Casing	Sealing
V	1.4301	1.4308	EPDM
VS	1.4404	1.4408	Viton
VC	1.4301	JL1040	EPDM

## 1.7 Pump bearing

Medium lubricated stage bearing  
Tungsten Carbide against Ceramic

## 1.8 Modular selection

To suit almost every application the pump is assembled out of modules which can be selected depending on the required working range. Basic modules are:



- 
- **Basic pump model**, which defines the capacity, pressure and basic material
  - **Connections**, which define the suction and discharge connection as well as the base plate.
  - **Sealings**, which define the elastomers, the mechanical seal and the shaft seal type.
  - **Electric motor**, which defines all requirements of the motor such as motor size, power, voltage, frequency and all possible motor accessories.

## 1.9 Approvals

CE	Conformity with European Safety Directive
ACS	Drinking Water Approval (F)
WRc	Drinking Water Approval (GB)
ATEX	Conformity with "ATmosphères EXplosibles" Directive



## 2 Performance characteristics

### 2.1 Performance range

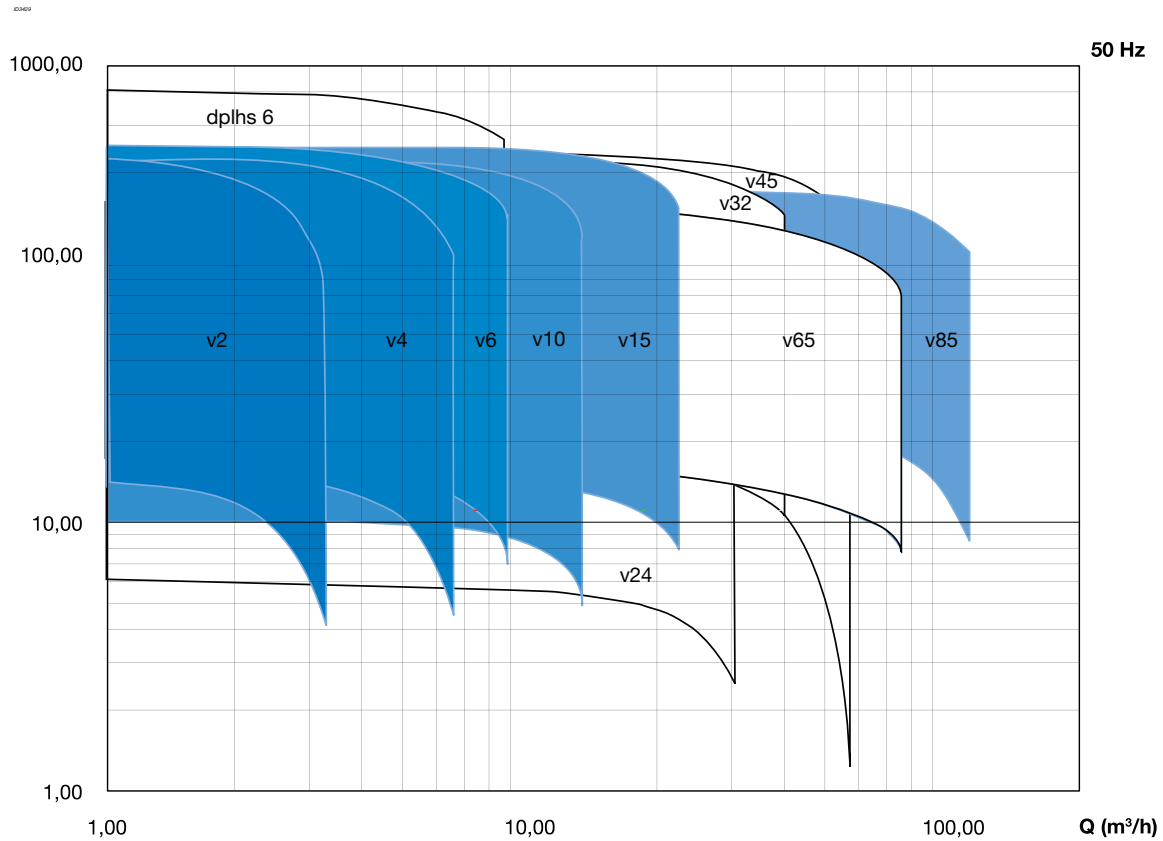


Figure 2: Performance range DPV 2,4,6,10,15 & 85 50 Hz

### 2.2 Performance curve details

The performance diagrams give a global overview of all the pump models the shaded models are 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. As per example:

DPV 4/2 B:	model DPV 4 B	2 stages with 2 full head impellers
DPV 85/4-1 B	model DPV 85 B	4 stages with 3 full head impellers and 1 reduced impeller

The detailed performance curves are in accordance with ISO 9906 Annex A.

The motors used for the measurements are calibrated motors with a specific rotational speed. Therefore the performance data, like Q/H, efficiency and shaft

power used for published curves are converted to the average speed per motor power. To refine this data the published data has to be corrected accordingly.

The published curves and data mentioned on the pump are based on the following rotational speed:

*Table 8: Rated motor power and speed in 2 pole*

Rated motor power	Rated speed at 50 Hz [rpm]	Rated speed at 60 Hz [rpm]
0.37 and 0.55 kW	2800	3460
to 2.2 kW	2880	3460
to 3 kW	2920	3510
to 4 kW	2920	3510
to 5.5 kW	2940	3530
to 7.5 kW	2940	3530
to 15 kW	2950	3530
to 22 kW	2950	3550
to 45 kW	2960	3550

The characteristics given are based on:

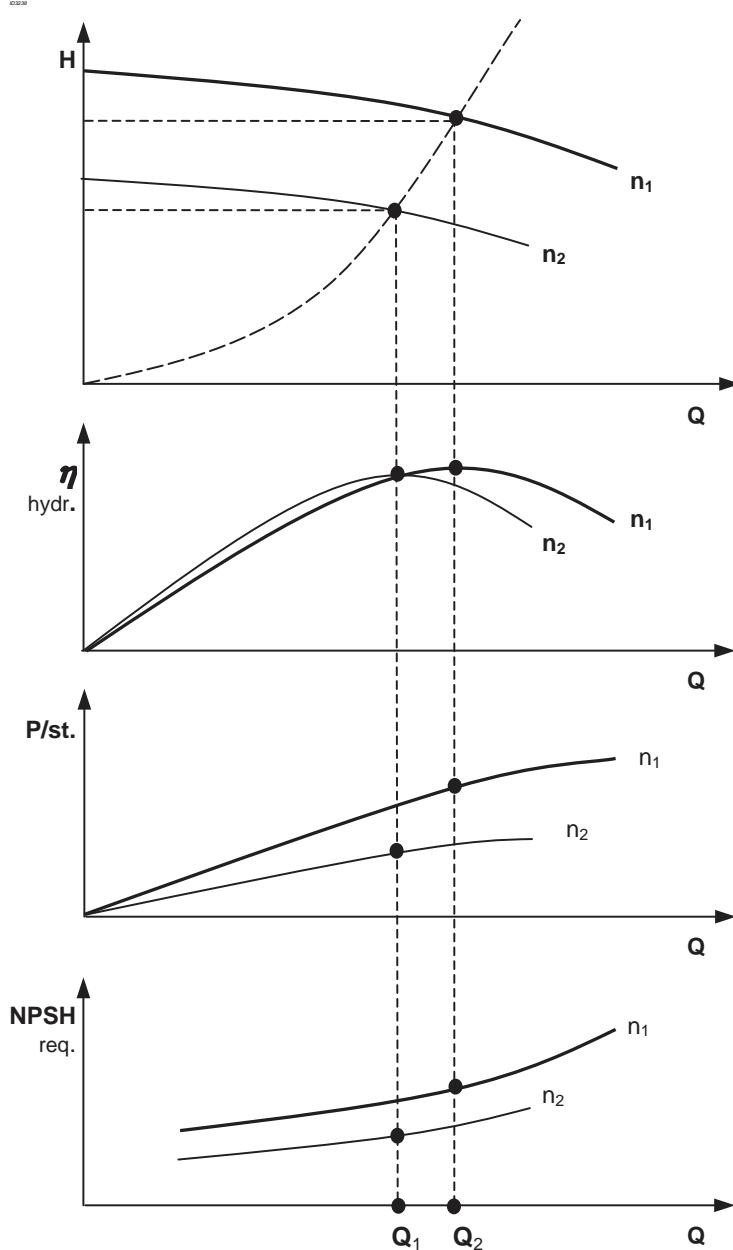
- De-aerated water at a temperature of 20 °C
- Density of 1.0 kg/dm<sup>3</sup>
- Kinematical viscosity of 1 mm<sup>2</sup>/s (1 cst)

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

### **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.



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

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

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

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

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

Figure 3: Performance characteristics

## 2.4 How to read the values from the curves

To find the required hydraulic information from the published curves, it is important to know the application in which the pump has to be installed.

There are two main distinction to be made:

- A Flow determined (like booster sets and cleaning) → Opening taps
- B Pressure determined (like boiler feed and reverse osmosis systems) → Facing counter pressure.

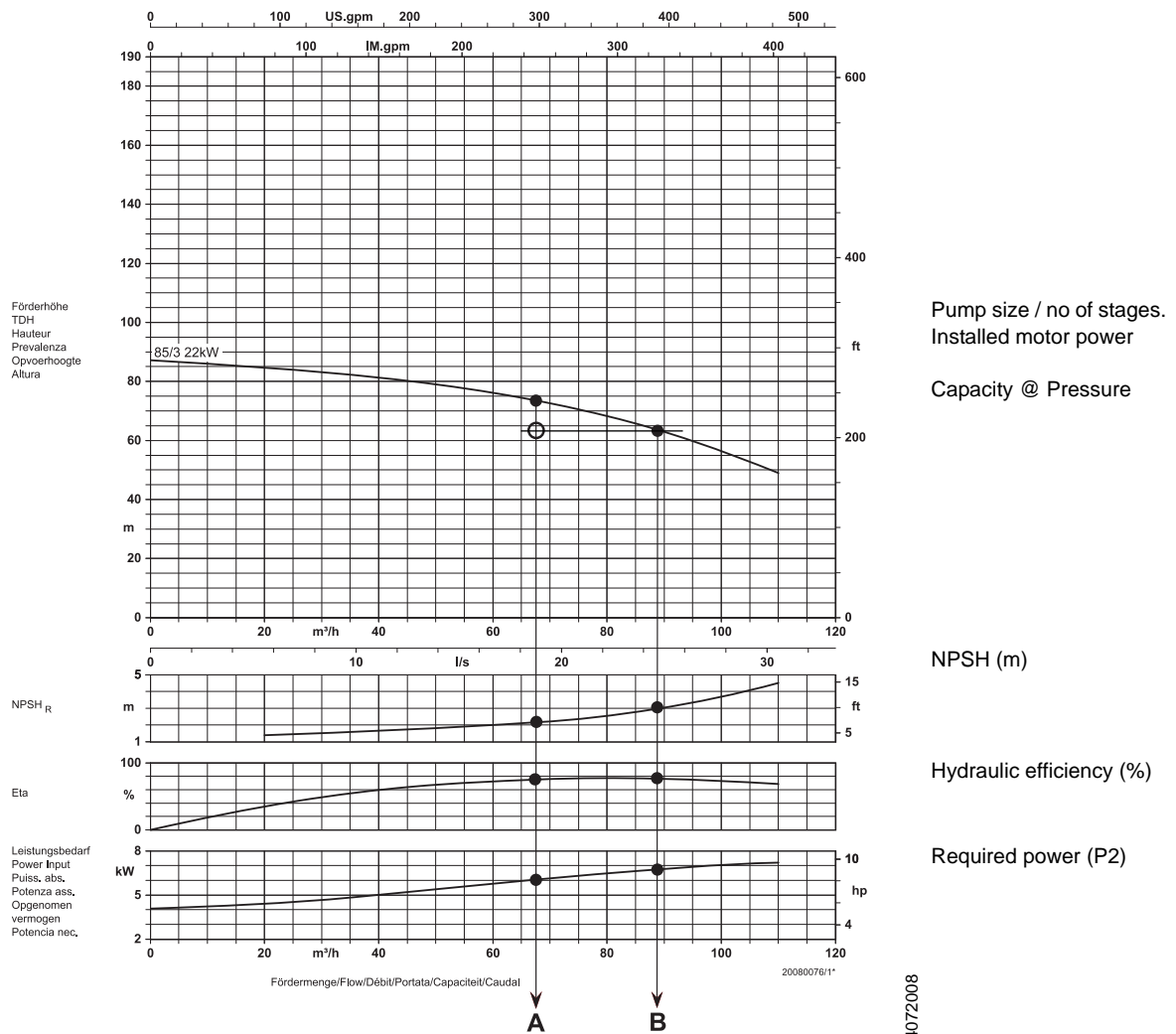


Figure 4: How to read the values from the curves

- Calculated duty point
- Actual hydraulic performance
- A Flow determined
- B Pressure determined

## 2.5 Hydraulic performance curve DPV(C/S)F 2 B - 50Hz -2 pole

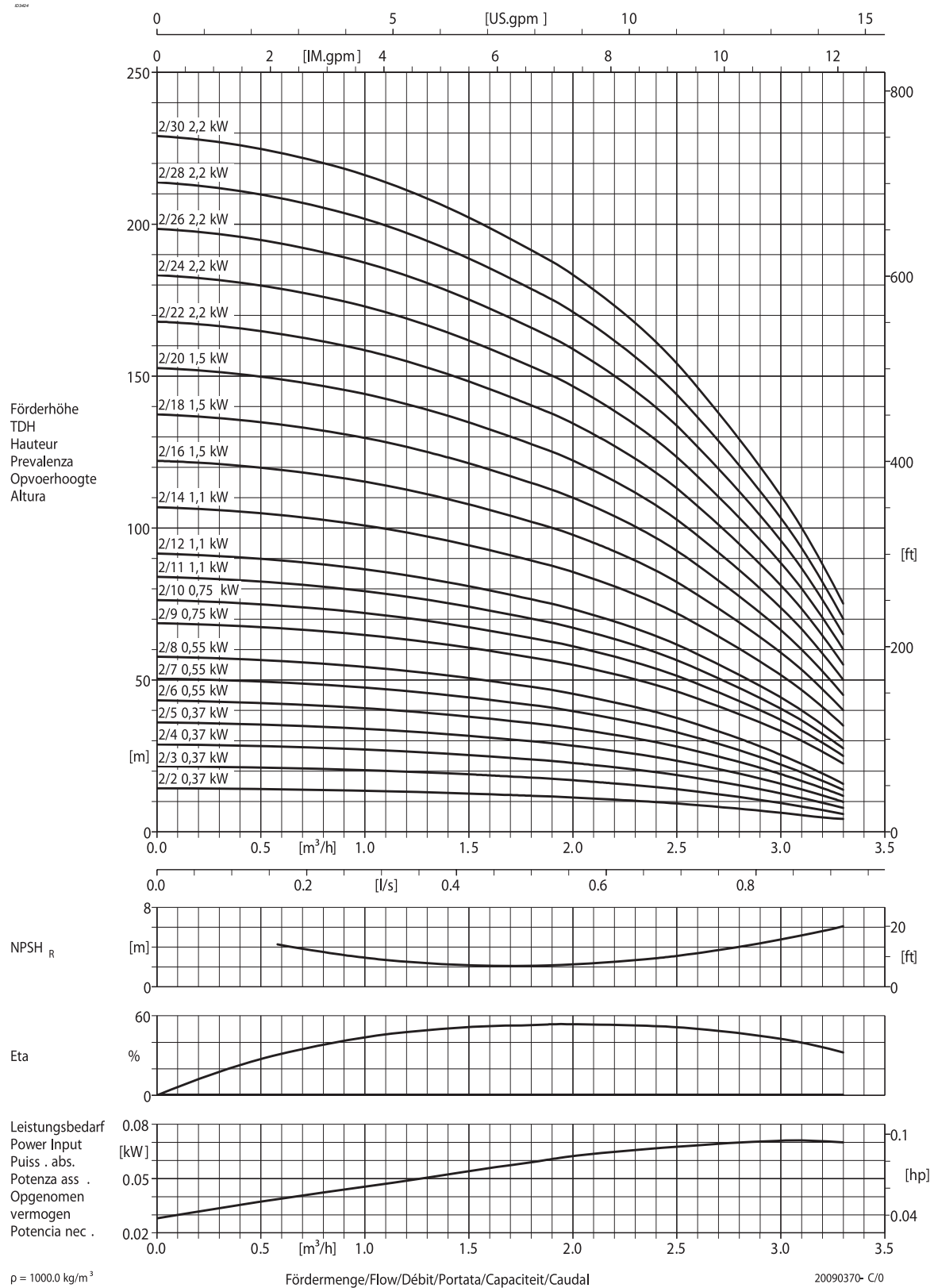


Figure 5: Performance curve DPV(C/S)F 2 B - 50Hz - 2 pole



## 2.6 Hydraulic performance curve DPV(C/S)F 4 B - 50Hz - 2 pole

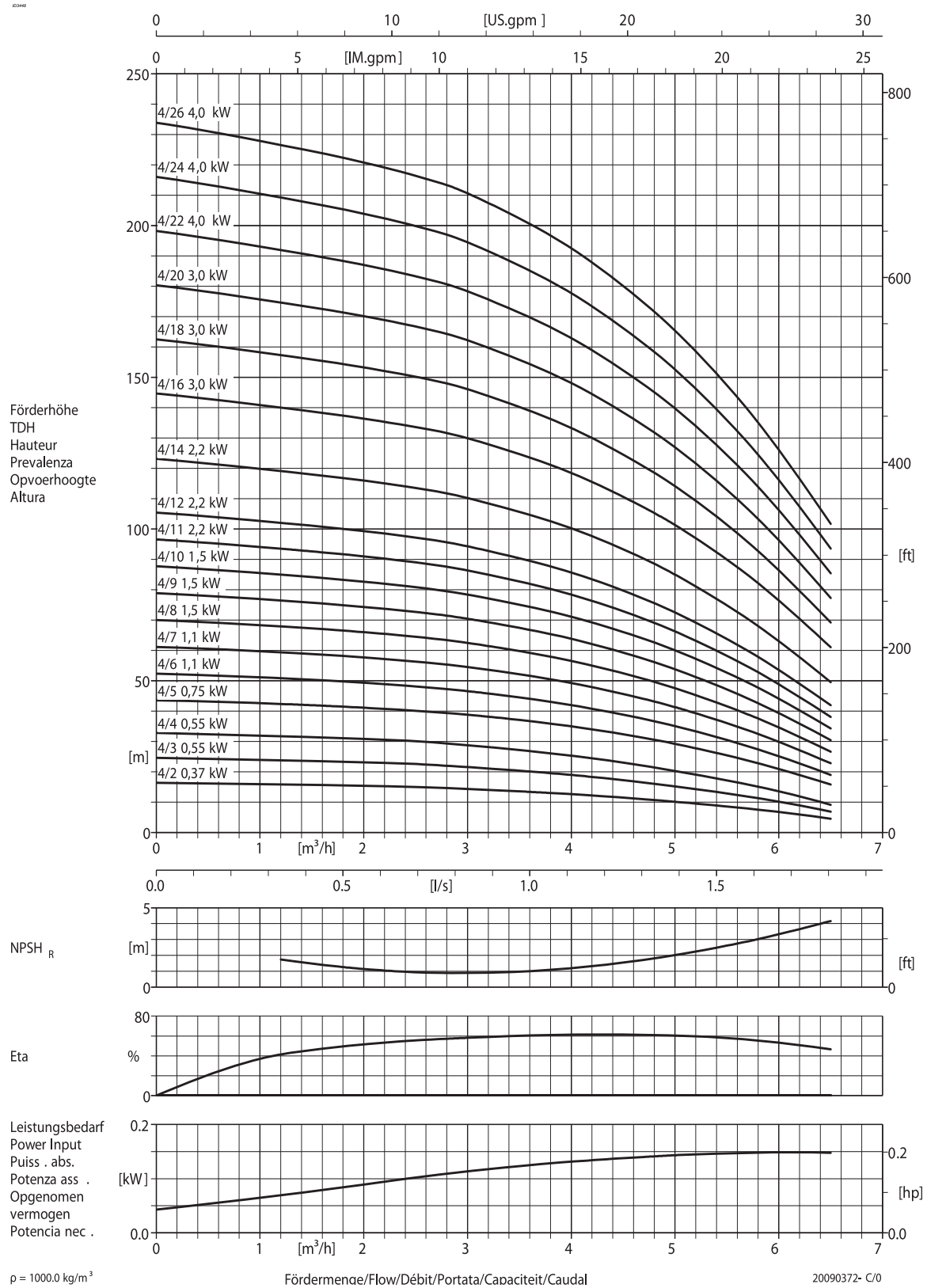


Figure 6: Performance curve DPV(C/S)F 4 B - 50Hz - 2 pole

## 2.7 Hydraulic performance curve DPV(C/S)F 6 B - 50Hz - 2 pole

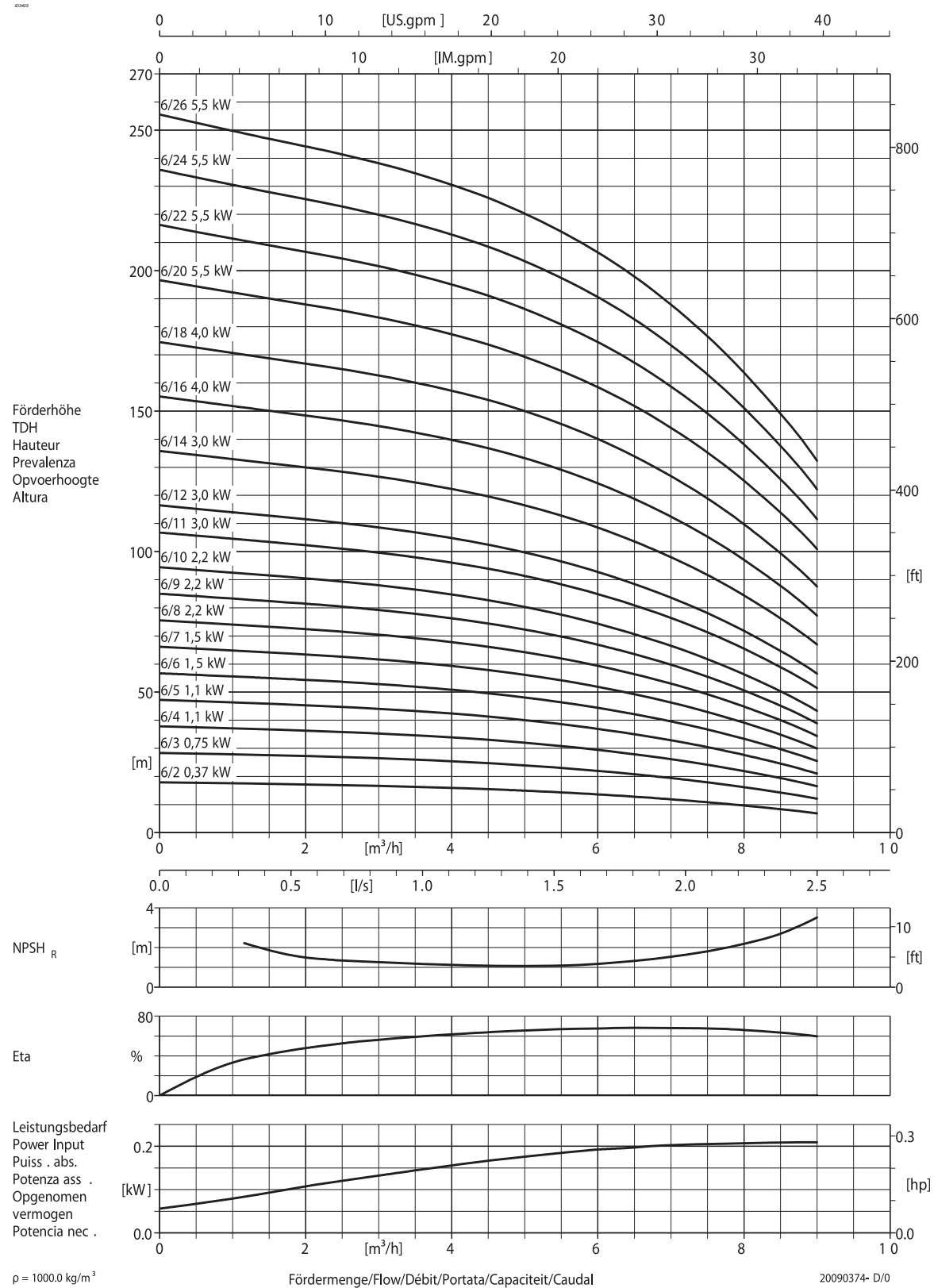


Figure 7: Performance curve DPV(C/S)F 6 B - 50Hz - 2 pole



## 2.8 Hydraulic performance curve DPV(C/S)F 10 B - 50Hz - 2 pole

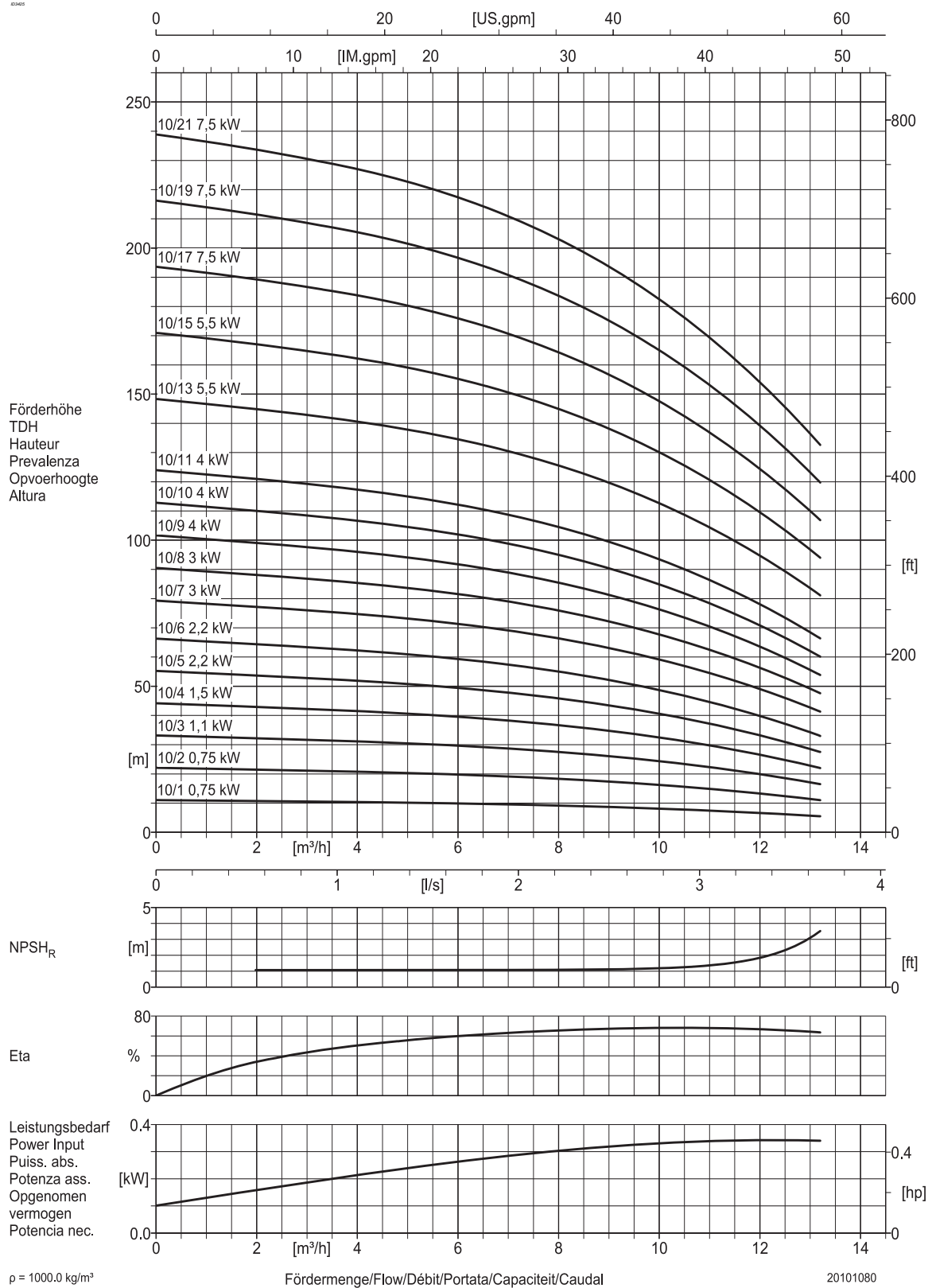


Figure 8: Performance curve DPV(C/S)F 10 B - 50Hz - 2 pole

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## 2.9 Hydraulic performance curve DPV(C/S)F 10 B - 50Hz - 4 pole

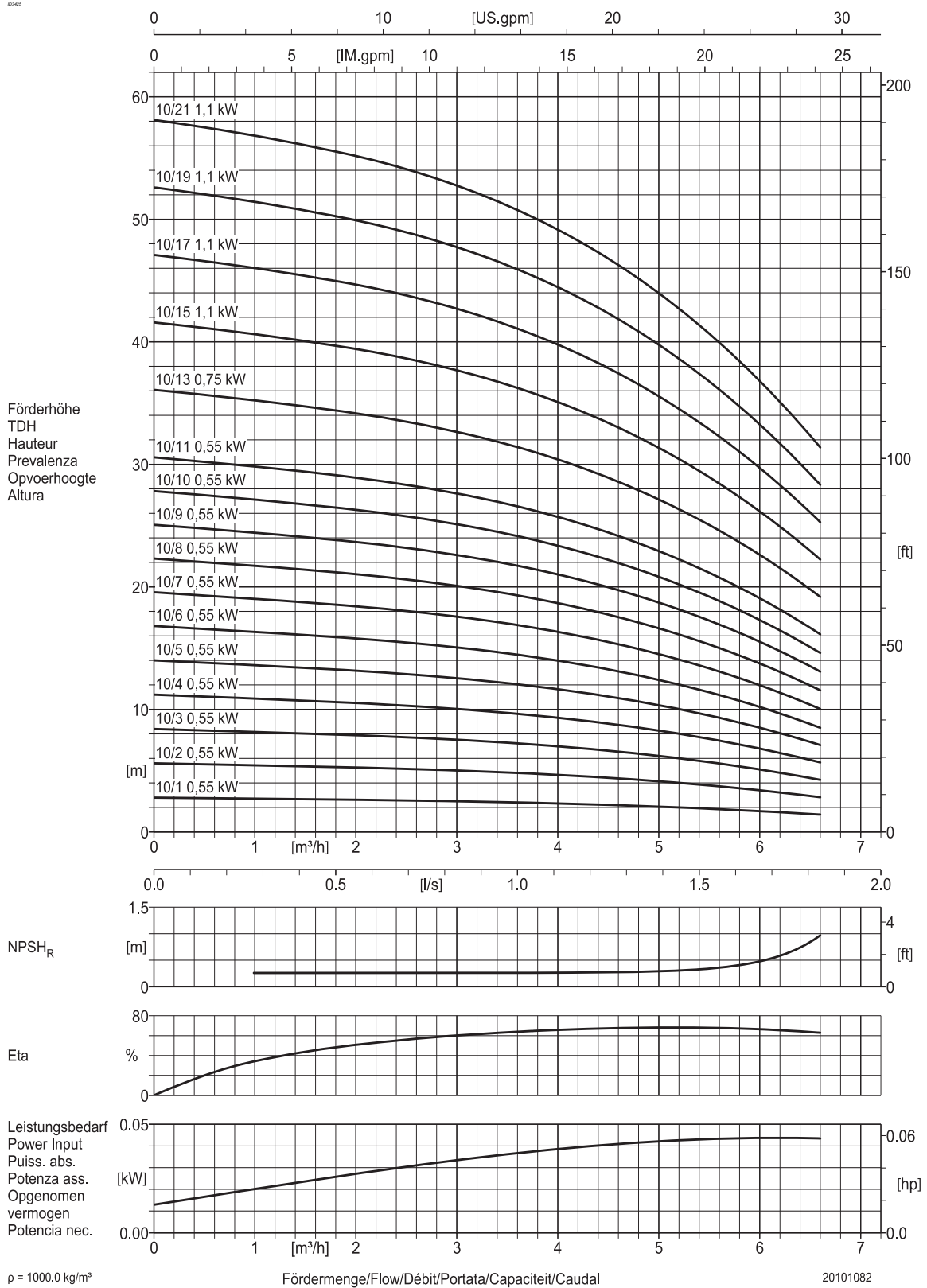


Figure 9: Performance curve DPV(C/S)F 10 B - 50Hz - 4 pole



## 2.10 Hydraulic performance curve DPV(C/S)F 15 B - 50Hz - 2 pole

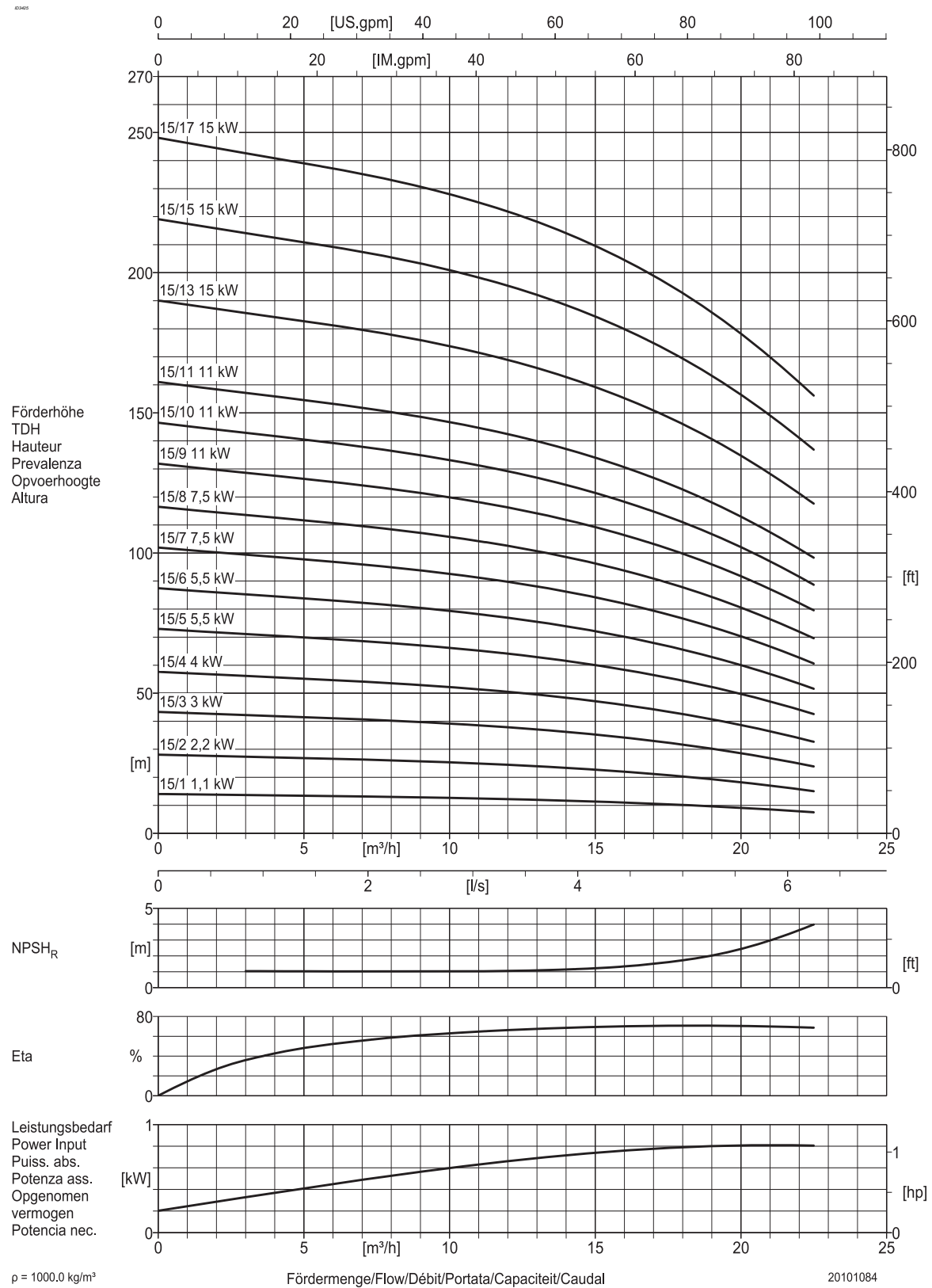


Figure 10: Performance curve DPV(C/S)F 15 B - 50Hz - 2 pole

## 2.11 Hydraulic performance curve DPV(C/S)F 15 B - 50Hz - 4 pole

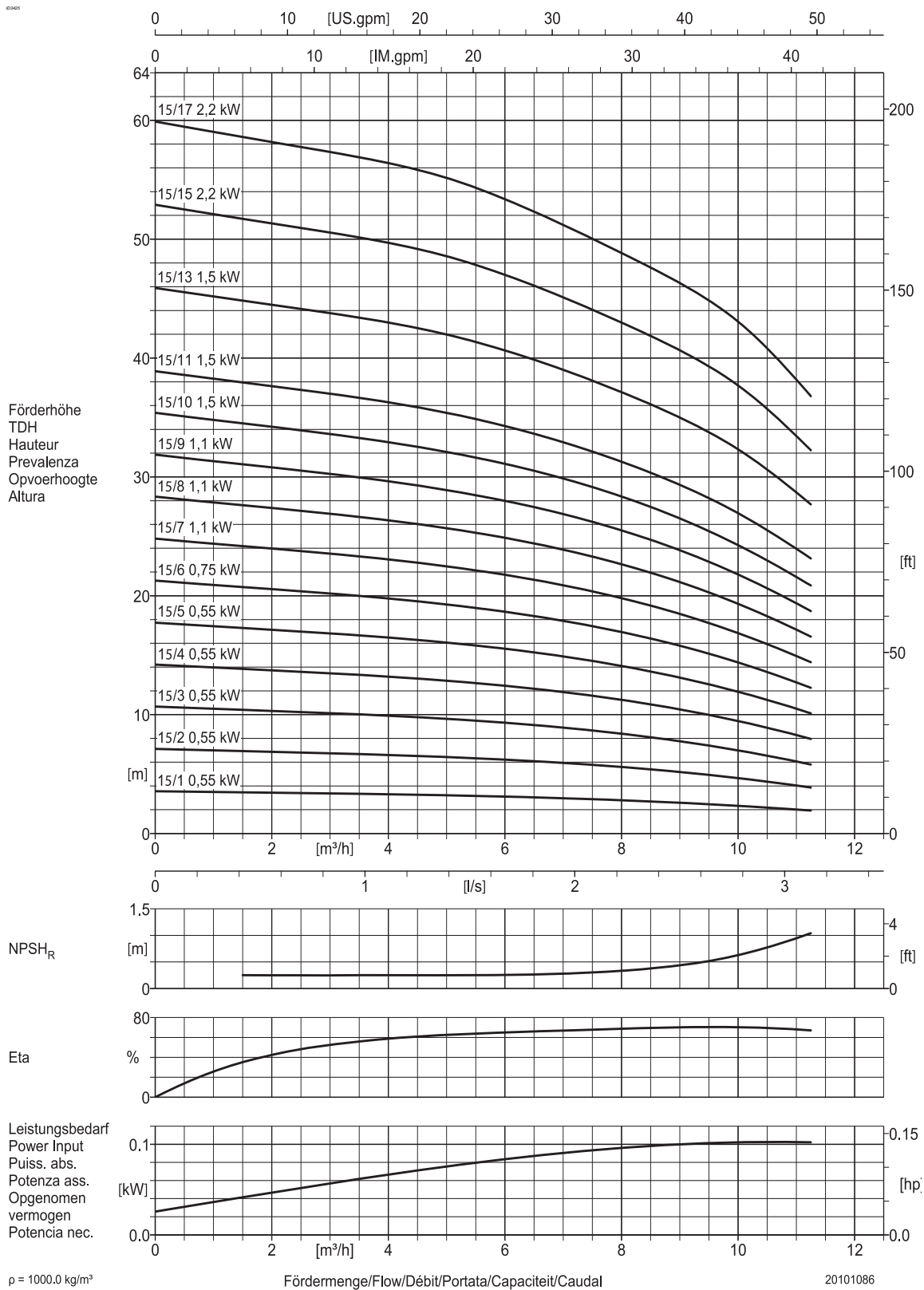


Figure 11: Performance curve DPV(C/S)F 15 B - 50Hz - 4 pole



## 2.12 Hydraulic performance curve DPV(C/S)F 85 B - 50Hz - 2 pole

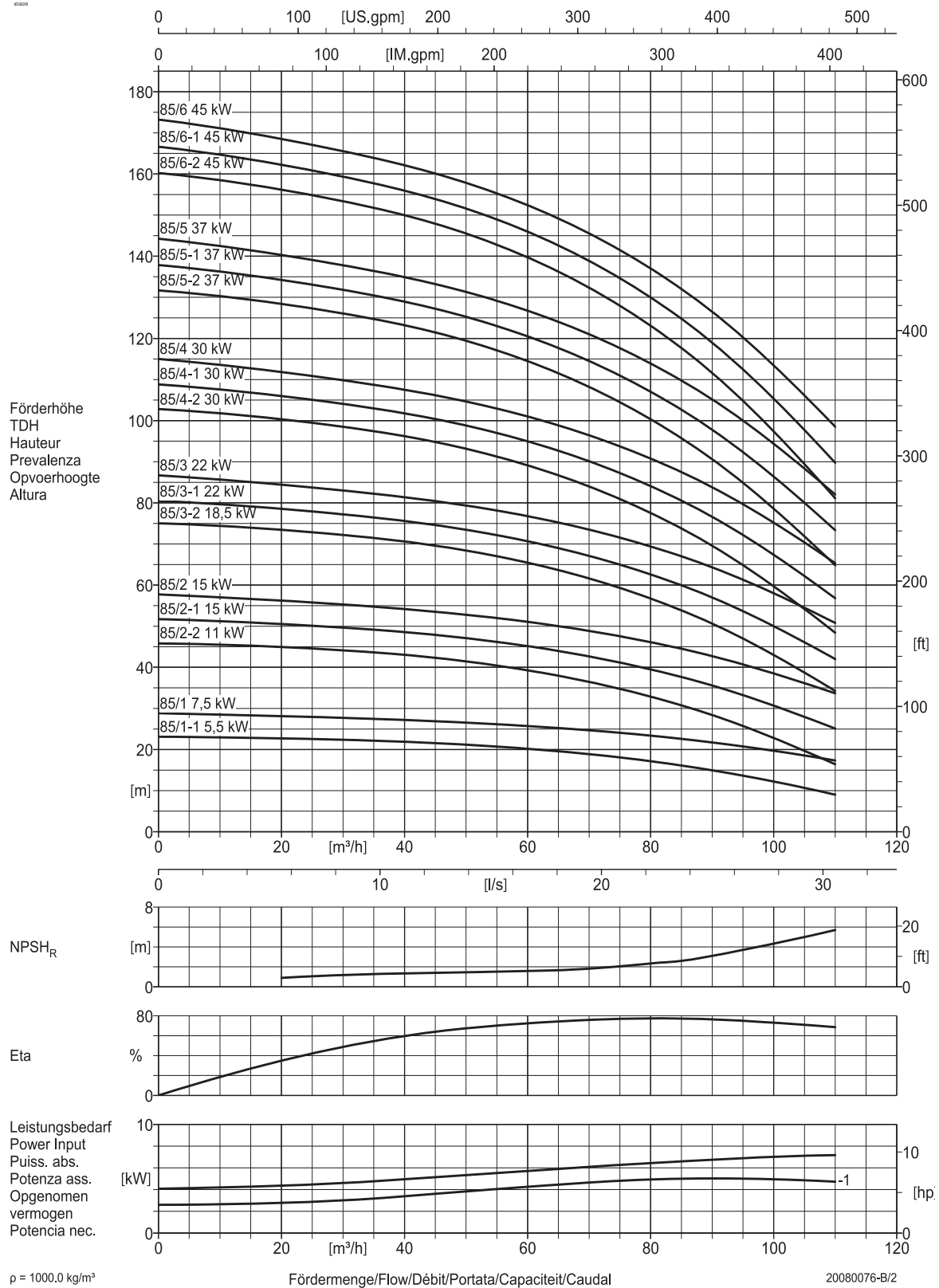


Figure 12: Performance curve DPV(C/S)F 85 B - 50Hz - 2 pole

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## 2.13 Hydraulic performance curve DPV(C/S)F 85 B - 50Hz - 4 pole

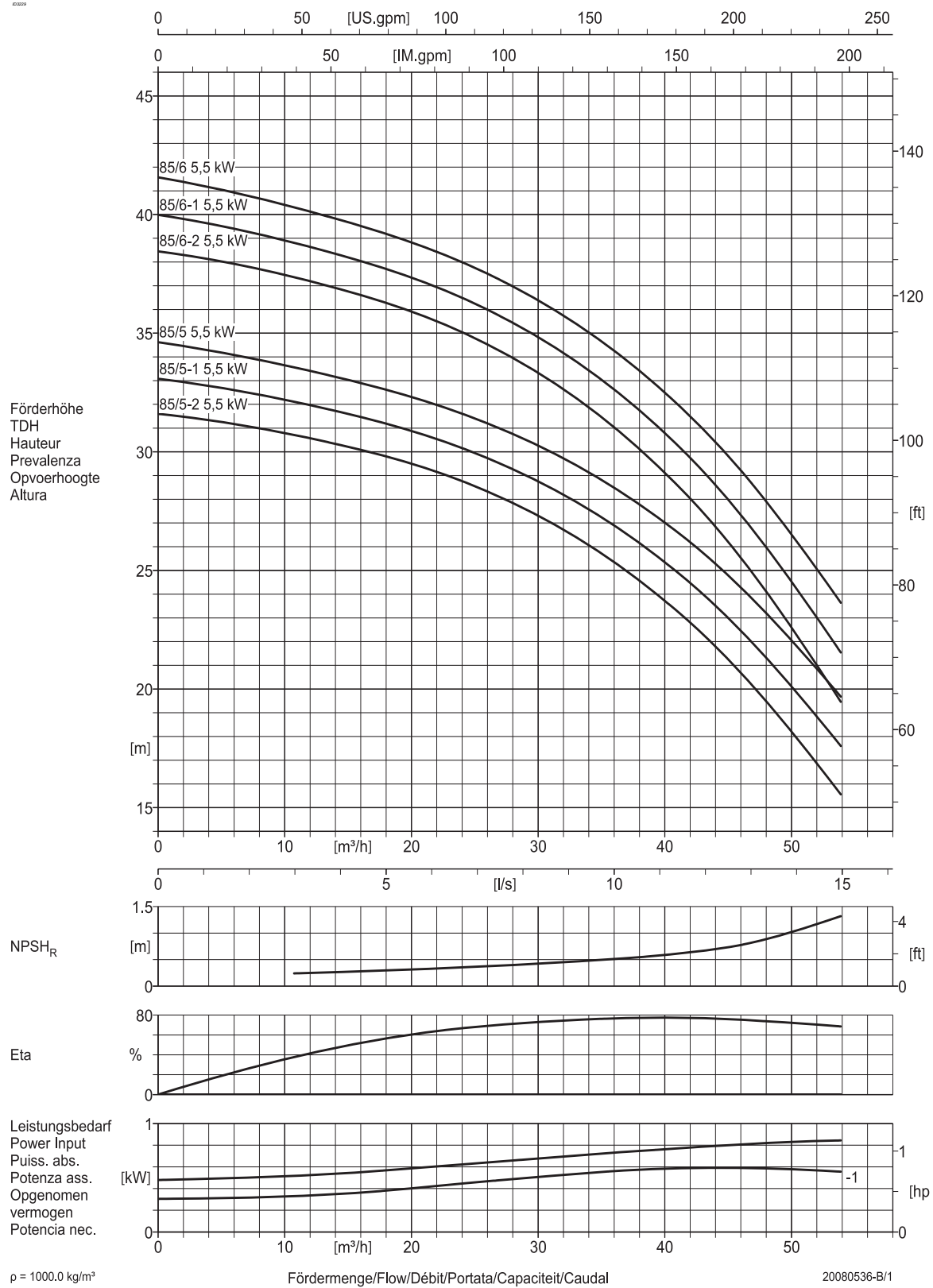


Figure 13: Performance curve DPV(C/S)F 85 B - 50Hz -4 pole

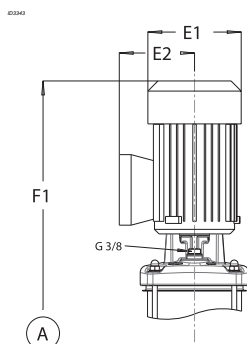


# 3 Dimensions

All below mentioned dimensions in mm. weight in kg

## 3.1 DPV(C/S)F 2 B - 50Hz - 2 pole - DIN

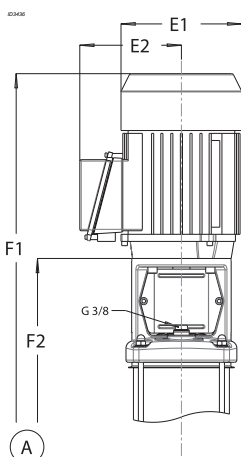
Table 9: VM CLOSED coupled motor construction type; IM 3619



20081033-E

Model	pressure class	Power [kW]	Motor dimensions			DPV(S)-E/V/T			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
2/2	PN10	0.37	138	109		420		15	445		20
2/3		0.37	138	109		441		16	466		21
2/4		0.37	138	109		463		16	488		21
2/5		0.37	138	109		484		17	509		21
2/6		0.55	138	109		506		17	531		22

Table 10: coupled motor construction type; V18



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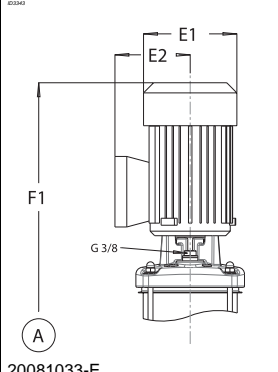
Model	pressure class	Power [kW]	Motor dimensions			DPV(S)-E/V/T (E/T-casing PN16)			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
2/2	PN10	0.37	138	109		472	259	18	497	284	22
2/3		0.37	138	109		493	280	18	518	305	23
2/4		0.37	138	109		515	302	18	540	327	23
2/5		0.37	138	109		536	323	19	561	348	24
2/6		0.55	138	109		558	345	19	583	370	24
2/7		0.55	138	109		579	366	20	604	391	25
2/8		0.55	138	109		601	398	20	626	423	25
2/9		0.75	160	150		676	419	27	701	444	32
2/10		0.75	160	150		698	441	27	723	466	32
2/11		1.10	160	150		719	462	28	744	487	32
2/12		1.10	160	150		741	484	28	766	509	33
2/14		PN16	1.10	160	150		784	527	29	809	552
2/16	1.50		185	160		833	580	36	858	605	40
2/18	1.50		185	160		876	623	36	901	648	41
2/20	1.50		185	160		919	666	37	944	691	42
2/22	PN25/40	2.20	185	160		991	709	45	1016	734	46
2/24		2.20	185	160		1034	752	46	1059	777	46
2/26		2.20	185	160		1077	795	46	1102	820	47
2/28		2.20	185	160		1120	838	47	1145	863	48
2/30		2.20	185	160		1163	881	64	1188	906	64

	<p><b>DPV E Male thread -</b>  With non return valve insert at discharge side and pressure measurement plug at upstream side  Norm: G EN ISO 228  Size: G 6/4  Pressure Class: PN16  Option: Base plate in Cast SS 1.4308</p>
	<p><b>DPV (S)</b>  Counter flange with female thread included  DPV: Cataphoric coated cast iron  DPVS: Cast Stainless steel 1.4408  Norm: G EN ISO 228  Size: G1  Pressure Class: PN16  Option: SS 1.4308 flange and base plate</p>
	<p><b>DPV (S) V Victaulic</b>  Norm: -  Size: 42.2  Pressure Class: PN25  Option: Base plate in cast SS 1.4308</p>
	<p><b>DPV S T Tri-Clamp</b>  Norm: 32676  Size: DN32  Pressure Class: PN16  Option: Base plate in cast SS 1.4308</p>
	<p><b>DPV C F Cast iron flange</b>  Norm: EN 1092-1/1092-2  Size: NW25  Pressure Class: PN40</p>
	<p><b>DPV (S) F Round collar flange</b>  Cataphoric coated collar flange  Norm: EN 1092-1/1092-2  Size: NW25  Pressure Class: PN40  Option: Collar flange and/or base plate in cast SS 1.4308</p>



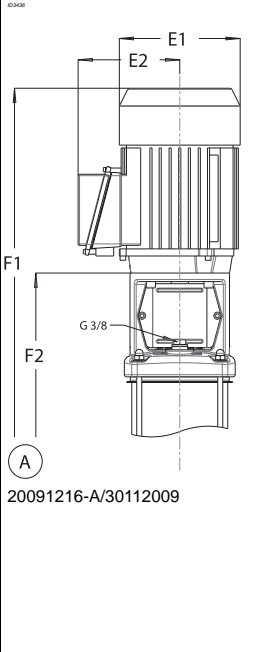
### 3.2 DPV(C/S)F 4 B - 50Hz - 2 pole - DIN

Table 11: VM CLOSED coupled motor construction type; IM 3619



Model	pressure class	Power [kW]	Motor dimensions			DPV(S)-E/V/T			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
4/2	PN10	0.37	138	109		420		15	453		20
4/3		0.55	138	109		441		16	466		21
4/4		0.55	138	109		463		16	488		21
4/5		0.75	160	150		528		23	553		27
4/6		1.1	160	150		550		23	573		28

Table 12: coupled motor construction type; V18



Model	pressure class	Power [kW]	Motor dimensions			DPV(S)-E/V/T (E/T-casing PN16)			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
4/2	PN10	0.37	138	109		472	259	18	497	284	22
4/3		0.55	138	109		493	280	18	518	305	23
4/4		0.55	138	109		515	302	19	540	327	23
4/5		0.75	160	150		590	333	25	615	358	30
4/6		1.1	160	150		612	355	26	637	380	30
4/7		1.1	160	150		633	376	26	658	401	31
4/8		1.5	185	160		661	408	32	686	433	37
4/9		1.5	185	160		682	429	33	707	454	37
4/10		1.5	185	160		704	451	33	729	476	38
4/11		2.2	185	160		754	472	34	779	497	39
4/12		PN16	2.2	185	160		776	494	35	801	519
4/14	2.2		185	160		819	537	36	844	562	41
4/16	3		205	175		904	590	47	929	615	52
4/18	PN25/40	3	205	175		947	633	52	972	658	53
4/20		3	205	175		990	676	53	1015	701	53
4/22		4	220	190		1042	719	60	1067	744	61
4/24		4	220	190		1085	762	61	1110	787	62
4/26	4	220	190		1128	805	78	1153	830	78	

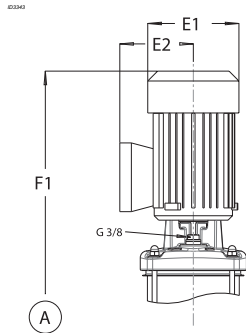


	<p><b>DPV E Male thread -</b>  With non return valve insert at discharge side and pressure measurement plug at upstream side  Norm: G EN ISO 228  Size: G 6/4  Pressure Class: PN16  Option: Base plate in cast SS 1.4308</p>
	<p><b>DPV (S)</b>  Counter flange with female thread included  DPV: Cataphoric coated cast iron  DPVS: Cast Stainless steel 1.4408  Norm: G EN ISO 228  Size: G1  Pressure Class: PN16  Option: Base plate &amp; flange in SS 1.4308</p>
	<p><b>DPV (S) V Victaulic</b>  Norm: -  Size: 42.2  Pressure Class: PN25  Option: Base plate in cast SS 1.4308</p>
	<p><b>DPV S T Tri-Clamp</b>  Norm: 32676  Size: DN32  Pressure Class: PN16  Option: Base plate in cast SS 1.4308</p>
	<p><b>DPV C F Cast iron flange</b>  Norm: EN 1092-1/1092-2  Size: NW25  Pressure Class: PN40</p>
	<p><b>DPV (S) F Round collar flange</b>  Cataphoric coated collar flange  Norm: EN 1092-1/1092-2  Size: NW25  Pressure Class: PN40  Option: Collar flange and/or base plate in cast SS 1.4308</p>



### 3.3 DPV(C/S)F 6 B - 50Hz - 2 pole - DIN

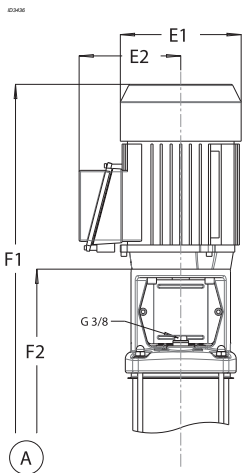
Table 13: VM CLOSED coupled motor construction type; IM 3619



20081033-E

Model	pressure class	Power [kW]	Motor dimensions			DPV(S)-E/V/T			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
6/2	PN10	0.37	138	109		427		16	452		24
6/3		0.75	160	150		496		22	521		30
6/4		1.1	160	150		521		23	546		31
6/5		1.1	160	150		546		23	571		31

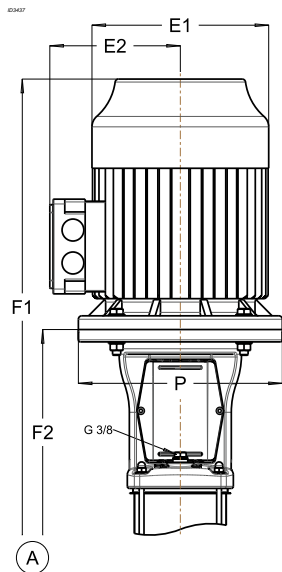
Table 14: coupled motor construction type; V18



20091216-A/30112009

Model	pressure class	Power [kW]	Motor dimensions			DPV(S)-E/V/T (E/T-casing PN16)			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
6/2	PN10	0.37	138	109		479	266	18	504	291	26
6/3		0.75	160	150		558	301	25	583	326	31
6/4		1.1	160	150		583	326	25	608	351	31
6/5		1.1	160	150		608	351	26	633	376	32
6/6		1.5	185	160		639	386	32	664	411	38
6/7		1.5	185	160		664	411	32	689	436	38
6/8		2.2	185	160		718	436	34	743	461	40
6/9		2.2	185	160		743	461	34	768	486	41
6/10		2.2	185	160		768	486	35	793	511	41
6/11		PN16	3	205	175		835	521	45	860	546
6/12	3		205	175		860	546	46	885	571	52
6/14	3		205	175		910	596	47	935	621	53
6/16	4		220	190		969	646	51	994	671	61
6/18	PN25/40	4	220	190		1016	696	61	1044	721	62

Table 15: coupled motor construction type; V1



20091217

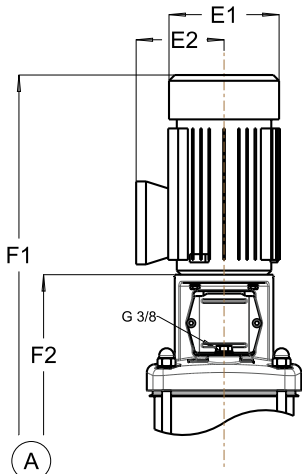
Model	pressure class	Power [kW]	Motor dimensions			DPV(S)-V			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
6/20	PN25/40	5.5	260	220	300	1168	822	96	1193	847	97
6/22		5.5	260	220	300	1218	872	97	1243	897	98
6/24		5.5	260	220	300	1268	922	98	1293	947	99
6/26		5.5	260	220	300	1318	972	99	1343	997	100

	<p><b>DPV E Male thread -</b>          With non return valve insert at discharge side and pressure measurement plug at upstream side          Norm: G EN ISO 228          Size: G 6/4          Pressure Class: PN16          Option: Base plate in cast SS 1.4308</p>
	<p><b>DPV (S)</b>          Counter flange with female thread included          DPV: Cataphoric coated cast iron          DPVS: Cast Stainless steel 1.4408          Norm: G EN ISO 228          Size: G 5/4          Pressure Class: PN16          Option: Flange and base plate in SS1.4308</p>
	<p><b>DPV (S) V Victaulic</b>          Norm: -          Size: 42.2          Pressure Class: PN25          Option: Base plate in SS 1.4308</p>
	<p><b>DPV S T Tri-Clamp</b>          Norm: 32676          Size: DN32          Pressure Class: PN16          Option: Baseplate in cast SS 1.4308</p>
	<p><b>DPV C F Cast iron flange</b>          Norm: EN 1092-1/1092-2          Size: NW32          Pressure Class: PN40</p>
	<p><b>DPV (S) F Round collar flange</b>          Cataphoric coated collar flange          Norm: EN 1092-1/1092-2          Size: NW32          Pressure Class: PN40          Option: Collar flange and/or base plate in cast SS 1.4308</p>



### 3.4 DPV(C/S)F 10 B - 50Hz - 2 pole - DIN

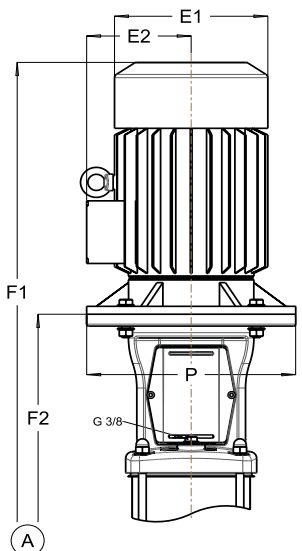
Table 16: coupled motor construction type; V18



Model	pressure class	Power [kW]	Motor dimensions			DPV(S)-E/V/T (E/T-casing PN16)			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
10/1	PN10	0.75	160	150		621	346	32	621	346	36
10/2		0.75	160	150		621	346	33	621	346	36
10/3		1.1	160	150		647	372	36	647	372	39
10/4		1.5	185	160		679	409	41	679	409	45
10/5		2.2	185	160		720	435	45	720	435	48
10/6		2.2	185	160		747	462	45	747	462	49
10/7		3.0	205	175		828	498	54	828	498	58
10/8		3.0	205	175		855	525	55	855	525	59
10/9	PN16	4.0	205	175		891	551	62	891	551	65
10/10		4.0	205	175		918	578	63	918	578	66
10/11		4.0	205	175		944	604	64	944	604	67

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Table 17: coupled motor construction type; V1



Model	pressure class	Power [kW]	Motor dimensions			DPV(S)-V			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
10/13	PN16	5.5	260	220	300	1102	737	104	1102	737	108
10/15	PN25/40	5.5	260	220	300	1155	790	108	1155	790	112
10/17		7.5	260	220	300	1208	843	116	1208	843	118
10/19		7.5	260	220	300	1261	896	118	1261	896	120
10/21		7.5	260	220	300	1314	949	120	1314	949	122

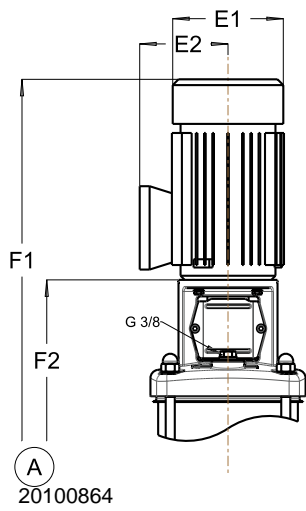
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	<p><b>DPV E Male thread -</b>          With non return valve insert at discharge side and pressure measurement plug at upstream side          Norm: G EN ISO 228          Size: G 2          Pressure Class: PN16          Option: Base plate in cast SS 1.4308</p>
	<p><b>DPV (S)</b>          Counter flange with female thread included          DPV: Cataphoric coated cast iron          DPVS: Cast Stainless steel 1.4408          Norm: G EN ISO 228          Size: G 6/4          Pressure Class: PN16          Option: Flange and base plate in SS1.4308</p>
	<p><b>DPV (S) V Victaulic</b>          Norm: -          Size: 60.3          Pressure Class: PN25          Option: Base plate in SS 1.4308</p>
	<p><b>DPV S T Tri-Clamp</b>          Norm: 32676          Size: Ø64          Pressure Class: PN16          Option: Baseplate in cast SS 1.4308</p>
	<p><b>DPV C F Cast iron flange</b>          Norm: EN 1092-1/1092-2          Size: NW40          Pressure Class: PN40</p>
	<p><b>DPV (S) F Round collar flange</b>          Cataphoric coated collar flange          Norm: EN 1092-1/1092-2          Size: NW40          Pressure Class: PN40          Option: Collar flange and/or base plate in cast SS 1.4308</p>



### 3.5 DPV(C/S)F 10 B - 50Hz - 4 pole - DIN

Table 18: coupled motor construction type; V18



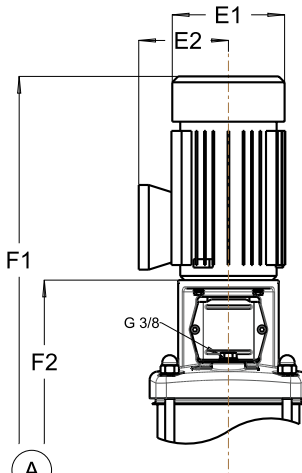
Model	pressure class	Power [kW]	Motor dimensions			DPV(S)-E/V/T			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
10/1	PN10	0.55	138.5	110		592	346	35	592	346	38
10/2		0.55	138.5	110		592	346	35	592	346	38
10/3		0.55	138.5	110		618	372	36	618	372	39
10/4		0.55	138.5	110		645	399	37	645	399	41
10/5		0.55	138.5	110		671	425	38	671	425	42
10/6		0.55	138.5	110		698	452	39	698	452	43
10/7		0.55	138.5	110		724	478	40	724	478	44
10/8		0.55	138.5	110		750	505	41	750	505	45
10/9		0.55	138.5	110		777	531	43	777	531	46
10/10		0.55	138.5	110		804	558	44	804	558	47
10/11		0.55	138.5	110		830	584	45	830	584	48
10/13		0.75	159	155		912	672	62	912	672	65
10/15		1.1	159	155		970	700	67	970	700	71
10/17		1.1	159	155		1023	753	71	1023	753	73
10/19		1.1	159	155		1076	806	73	1076	806	75
10/21		1.1	159	155		1129	859	75	1129	859	77

	<p><b>DPV E Male thread -</b>          With non return valve insert at discharge side and pressure measurement plug at upstream side          Norm: G EN ISO 228          Size: G 2          Pressure Class: PN16          Option: Base plate in cast SS 1.4308</p>
	<p><b>DPV (S)</b>          Counter flange with female thread included          DPV: Cataphoric coated cast iron          DPVS: Cast Stainless steel 1.4408          Norm: G EN ISO 228          Size: G 6/4          Pressure Class: PN16          Option: Flange and base plate in SS1.4308</p>
	<p><b>DPV (S) V Victaulic</b>          Norm: -          Size: 60.3          Pressure Class: PN25          Option: Base plate in SS 1.4308</p>
	<p><b>DPV S T Tri-Clamp</b>          Norm: 32676          Size: Ø64          Pressure Class: PN16          Option: Baseplate in cast SS 1.4308</p>
	<p><b>DPV C F Cast iron flange</b>          Norm: EN 1092-1/1092-2          Size: NW40          Pressure Class: PN40</p>
	<p><b>DPV (S) F Round collar flange</b>          Cataphoric coated collar flange          Norm: EN 1092-1/1092-2          Size: NW40          Pressure Class: PN40          Option: Collar flange and/or base plate in cast SS 1.4308</p>



### 3.6 DPV(C/S)F 15 B - 50Hz - 2 pole - DIN

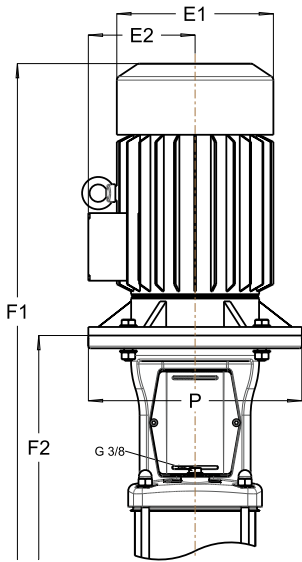
Table 19: coupled motor construction type; V18



Model	pressure class	Power [kW]	Motor dimensions			DPV(S)			DPV(C/S)F - DPV(S)V/T		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
15/1	PN10	1.1	160	150		621	346	34	631	356	40
15/2		2.2	185	160		641	356	41	651	366	47
15/3		3	205	175		722	392	50	732	402	56
15/4		4	205	175		759	419	56	769	429	62

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Table 20: coupled motor construction type; V1



Model	pressure class	Power [kW]	Motor dimensions			DPV(S)			DPV(C/S)F - DPV(S)V/T (T-casing PN16)		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
15/5	PN10	5.5	260	220	300	890	525	95	900	535	101
15/6		5.5	260	220	300	916	551	96	926	561	102
15/7	PN16	7.5	260	220	300	943	578	101	953	588	107
15/8		7.5	260	220	300	969	604	103	979	614	109
15/9		11	315	265	350	1159	661	180	1169	671	186
15/10		11	315	265	350	1185	687	181	1195	697	187
15/11	PN25	11	315	265	350				1222	724	188
15/13		15	315	265	350				1275	777	203
15/15		15	315	265	350				1328	830	205
15/17		15	315	265	350				1381	883	207

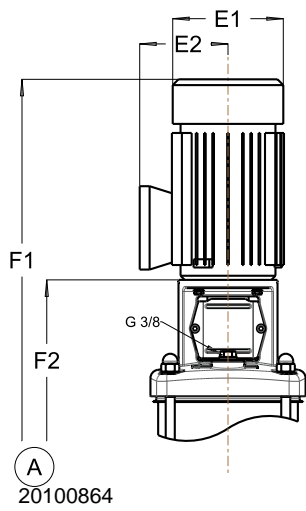
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	<p><b>DPV (S)</b>  Counter flange with female thread included  DPV: Cataphoric coated cast iron  DPVS: Cast Stainless steel 1.4408  Norm: G EN ISO 228  Size: G 2  Pressure Class: PN16  Option: Flange and base plate in SS1.4308</p>
	<p><b>DPV (S) V Victaulic</b>  Norm: -  Size: 60.3  Pressure Class: PN25  Option: Base plate in SS 1.4308</p>
	<p><b>DPV S T Tri-Clamp</b>  Norm: 32676  Size: Ø64  Pressure Class: PN16  Option: Baseplate in cast SS 1.4308</p>
	<p><b>DPV C F Cast iron flange</b>  Norm: EN 1092-1/1092-2  Size: NW50  Pressure Class: PN40</p>
	<p><b>DPV (S) F Round collar flange</b>  Cataphoric coated collar flange  Norm: EN 1092-1/1092-2  Size: NW50  Pressure Class: PN40  Option: Collar flange and/or base plate in cast SS 1.4308</p>

### 3.7 DPV(C/S)F 15 B - 50Hz - 4 pole - DIN

Table 21: coupled motor construction type; V18



Model	pressure class	Power [kW]	Motor dimensions			DPV(S)-E/V/T			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight	F1	F2	Weight
15/1	PN10	0.55	138.5	110		592	346	34	602	356	38
15/2		0.55	138.5	110		592	346	35	602	356	38
15/3		0.55	138.5	110		618	372	36	628	382	39
15/4		0.55	138.5	110		645	399	37	655	409	40
15/5		0.55	138.5	110		671	425	38	681	435	42
15/6		0.75	159	155		727	452	40	737	462	44
15/7		1.1	159	155		758	488	43	768	498	49
15/8		1.1	159	155		785	515	44	795	525	47
15/9		1.1	159	155		811	541	46	821	551	49
15/10		1.5	159	155		853	568	48	863	578	55
15/11		1.5	176.5	160		879	594	50	889	604	53
15/13		1.5	176.5	160		932	647	52	942	657	55
15/15		2.2	176.5	160		1040	710	62	1050	720	65
15/17		2.2	176.5	160		1093	763	64	1103	773	67

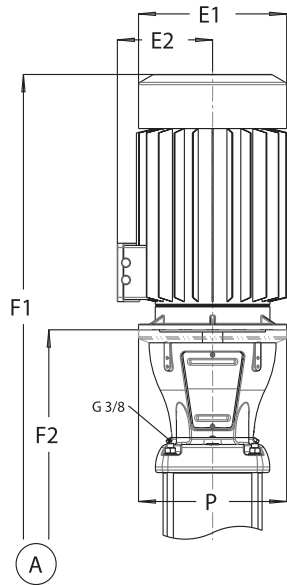
	<p><b>DPV E Male thread -</b>          With non return valve insert at discharge side and pressure measurement plug at upstream side          Norm: G EN ISO 228          Size: G 2          Pressure Class: PN16          Option: Base plate in cast SS 1.4308</p>
	<p><b>DPV (S)</b>          Counter flange with female thread included          DPV: Cataphoric coated cast iron          DPVS: Cast Stainless steel 1.4408          Norm: G EN ISO 228          Size: G 6/4          Pressure Class: PN16          Option: Flange and base plate in SS1.4308</p>
	<p><b>DPV (S) V Victaulic</b>          Norm: -          Size: 60.3          Pressure Class: PN25          Option: Base plate in SS 1.4308</p>
	<p><b>DPV S T Tri-Clamp</b>          Norm: 32676          Size: Ø64          Pressure Class: PN16          Option: Baseplate in cast SS 1.4308</p>
	<p><b>DPV C F Cast iron flange</b>          Norm: EN 1092-1/1092-2          Size: NW50          Pressure Class: PN40</p>
	<p><b>DPV (S) F Round collar flange</b>          Cataphoric coated collar flange          Norm: EN 1092-1/1092-2          Size: NW50          Pressure Class: PN40          Option: Collar flange and/or base plate in cast SS 1.4308</p>



### 3.8 DPV(C/S)F 85 B - 2 and 4 pole - DIN

Table 22: coupled motor construction type; V1

2345



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Model	pressure class	Power [kW]	Motor dimensions			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight
85/1-1	PN10	5.5	233	162	300	970	641	143
85/1		7.5	233	162	300	998	641	147
85/2-2		11	315	206	350	1282	780	234
85/2-1		15	315	206	350	1282	780	248
85/2		15	315	206	350	1282	780	248
85/3-2		18.5	315	206	350	1435	889	276
85/3-1		22	350	225	350	1484	889	312
85/3		22	350	225	350	1484	889	312
85/4-2	PN16	30	400	290	400	1648	998	406
85/4-1		30	400	290	400	1648	998	406
85/4		30	400	290	400	1648	998	406
85/5-2		37	400	290	400	1757	1107	438
85/5-1		37	400	290	400	1757	1107	438
85/5		37	400	290	400	1757	1107	438
85/6-2	PN25/40	45	466	373	466	1923	1216	574
85/6-1		45	466	373	466	1923	1216	575
85/6		45	466	373	466	1923	1216	575

Table 23: coupled motor construction type; V1, 4 pole

2345

Model	pressure class	Power [kW]	Motor dimensions			DPV(C/S)F		
			E1	E2	P	F1	F2	Weight
85/5-2	PN10	5.5	233	162	300	1460	1077	217
85/5-1		5.5	233	162	300	1460	1077	217
85/5		5.5	233	162	300	1460	1077	217
85/6-2		5.5	233	162	300	1569	1186	227
85/6-1		5.5	233	162	300	1569	1186	227
85/6		5.5	233	162	300	1569	1186	227

	<p><b>DPV C F Cast iron flange</b>  Norm: DIN 2633  Size: NW100  Pressure Class:PN16</p>
	<p><b>DPV C F Cast iron flange</b>  Norm: DIN 2633  Size: NW100  Pressure Class:PN25/40</p>
	<p><b>DPV (S) F Round collar flange</b>  Cataphoric coated collar flange  Norm: DIN 2633  Size: NW100  Pressure Class: PN16  Option: Collar flange and baseplate in cast SS1.4308</p>
	<p><b>DPV (S) F Round collar flange</b>  Cataphoric coated collar flange  Norm: DIN 2633  Size: NW100  Pressure Class: PN25/40  Option: Collar flange and baseplate in cast SS1.4308</p>

# 4 Seals

## 4.1 Mechanical seal option specifications

Table 24: Seal code

Shaft seal Type	Material mechanical seal	Seal code	Material shaft seal	Material pump elastomer	Temperature range shaft seal [°C]	Max. pressure [bar]	Fixed	Easy Access	Cartridge
MG-G60	B Q1 E GG	11	Ca / SiC / EPDM	EPDM	-20 - 100	10	●	●	●
MG-G60	B Q1 V GG	12	Ca / SiC / Viton	Viton	-20 - 120	10	●	●	●
RMG-G606	Q1 B E GG	13	SiC / Ca / EPDM	EPDM WRc / ACS	-20 - 100	25	●	●	●
RMG-G606	Q1 B V GG	14	SiC / Ca / Viton	Viton	-20 - 120 (140)	25 (16)	●	●	●
RMG-G606	U3 U3 X4 GG	15	TuC / TuC / HNBR	HNBR	-20 - 120 (140)	25 (16)	●	●	●
RMG-G606	U3 U3 V GG	16	TuC / TuC / Viton	Viton	-20 - 120	25	●	●	●
RMG-G606	U3 B E GG	18	TuC / Ca / EPDM	EPDM 559236	-20 - 120 (140)	25 (16)	●	●	●
H7N	Q1 A E GG	20	SiC / Ca / EPDM	EPDM 559236	-20 - 120 (140)	40 (25)			●
H7N	Q1 A V GG	21	SiC / Ca / Viton	Viton	-20 - 120 (140)	40 (25)			●
H7N	Q1 A X4 GG	22	SiC / Ca / HNBR	HNBR	-20 - 120 (140)	40 (25)			●
RMG-G606	Q1 B E GG	23	SiC / Ca / EPDM	EPDM	-20 - 100	25	●	●	●

# 5 Motors and motor options

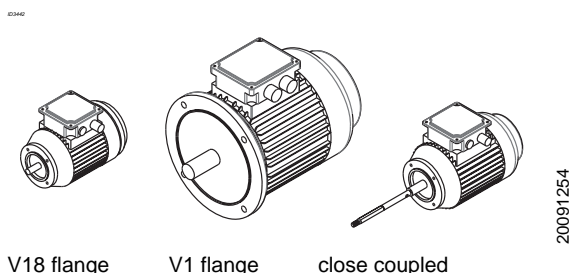
## 5.1 General

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 >= 0.75kW
- T.E.F.C. (totally enclosed fan cooled) Squirrel cage.
- AC induction motor.
- Protection IP55 (single phase IP54).
- Insulation class F.
- Temperature rise class B.
- Duty class S1, maximum 20 starts per hour.
- Noise levels conform IEC 60034-9.
- > 2.2 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



V18 flange      V1 flange      close coupled

## 5.2 Options

- Standard motors as per above, but in **4 pole** version (low speed) (sizes 10, 15 and 85).
- Standard motors as per above, but IP 54, in **single phase** (1x230V).
- Provided with 10 pole **industrial connector** “Harting stecker” HAN 10, mounted in stead of the motor connection box.
- Provided with **Rain cover** on top of the fan hood.
- For motors < 3kW provided with **3 x PTC and anti condensation heater**.
- Motors from other manufacturers like **Siemens** and VEM in efficiency class IE2.
- Explosion proof, class **Eex e II T3**, make Siemens.
- Explosion proof, class **Eex d II T4**, make Rotor.
- Marine approved variant acc. bureau Veritas

## 5.3 Motor data 3 phase 2 pole

Table 25: Motor data 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	Starts per hour
3700021003	0.37	230/400	1.64/0.94	4.6	0.78	10%	2750	74.2	58	1xM20x1.5	20
3700021005	0.55	230/400	2.31/1.33	5.2	0.75	10%	2790	77.6	58	1xM20x1.5	20
3700011007	0.75	230/400	2.99/1.72	8.7	0.78	10%	2875	80.8	58	1xM20x1.5	20
3700011011	1.1	230/400	4.22/2.43	9.3	0.79	10%	2875	82.8	58	1xM20x1.5	20
3710011015	1.5	230/400	5.7/3.3	7.6	0.81	10%	2900	81.8	56	1xM20x1.5	50



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	Starts per hour
3700011022	2.2	230/400	8.2/4.7	9.5	0.89	10%	2870	83.5	60	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
3700112055	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



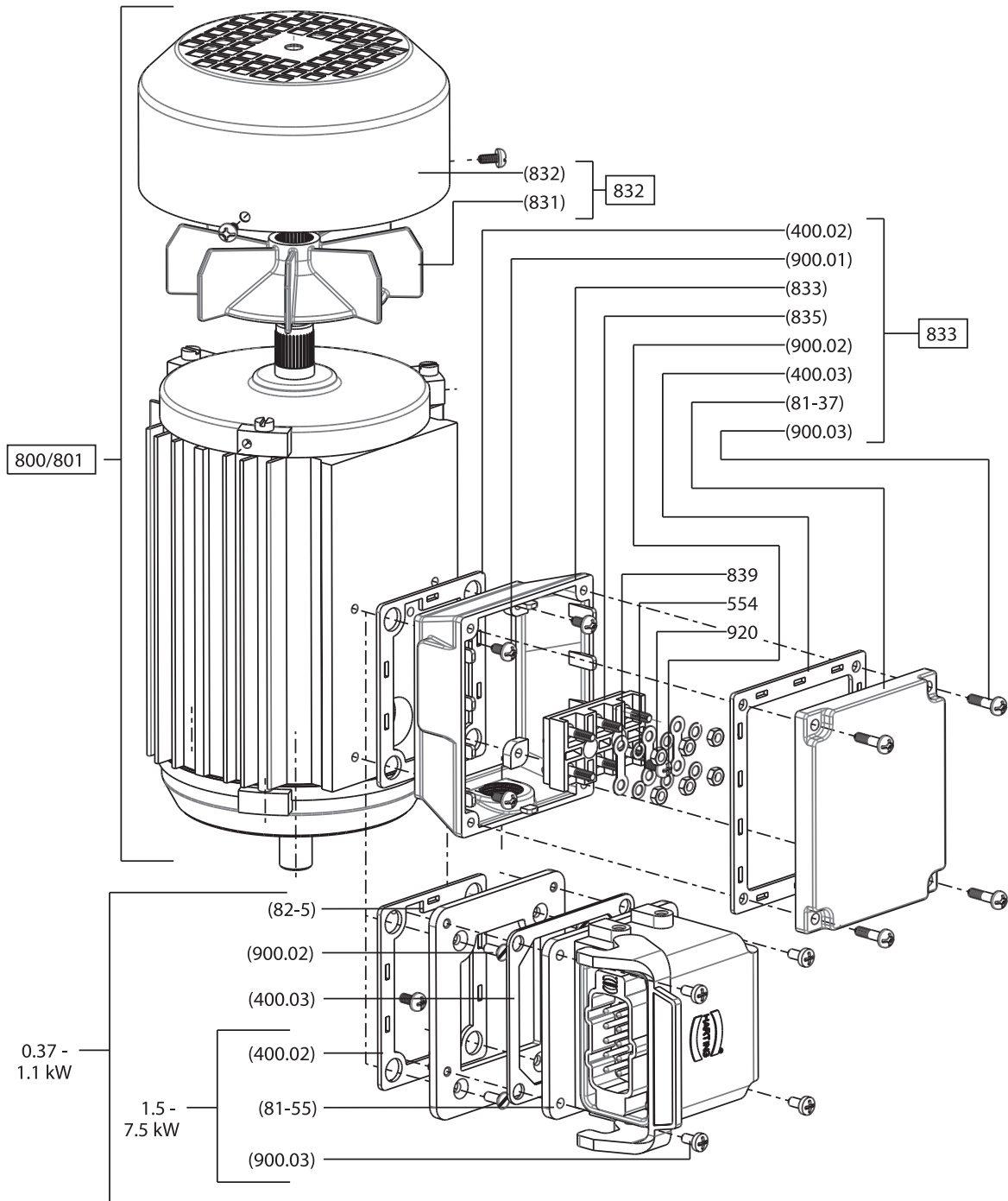


Figure 14: Motor exploded view

# 6 Accessories

## 6.1 Horizontal mounting kit (optional)

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

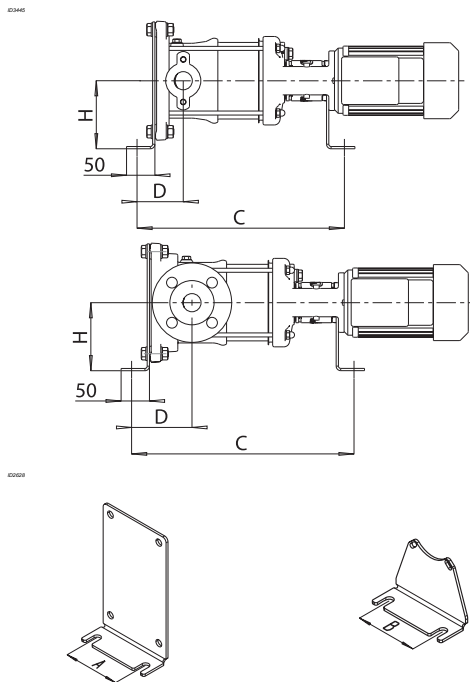


Figure 15: V(S)F 2/4/6/10/15 B horizontal

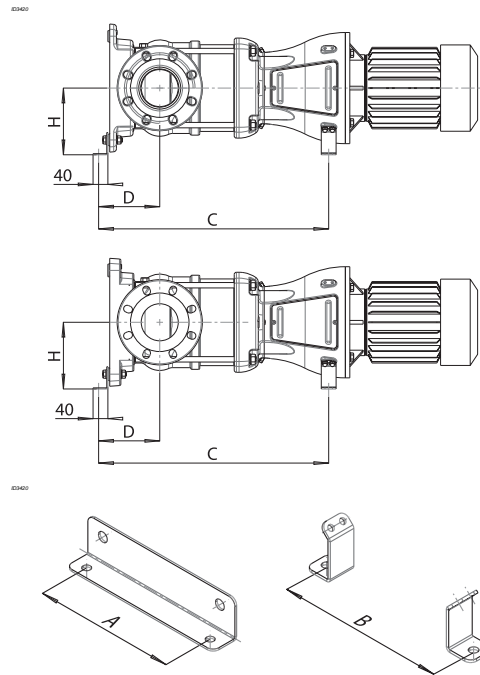


Figure 16: V(S)F 85 B horizontal

### 6.1.1 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 2/4/6 B		V(S)(V) D = 82				
		V(C/S)F D = 107				
Motor [kW]	Art. nr.	C	H	A	B	Weight [kg]
0.37 - 0.55 2p / 0.25 - 0.37 4p	18707065	F2+49	120	100	100	1.520
0.75 - 1.1 2p / 0.55 - 0.75 4p	18707066					
1.5 - 2.2 2p / 1.1 - 1.5 4p	18707067					
3 - 4 2p / 2.2 - 4 4p	18707068					
5.5 - 7.5 2p/4p	18707069	F2-18	170		210	2.280

20090417-A

DPV 10/15 B		V(S)(V) D = 111.5				
		V(C/S)F D = 121.5				
Motor [kW]	Art. nr.	C	H	A	B	Weight [kg]
0.75 - 1.1 2p / 0.55 - 0.75 4p	18707070	F2+49	140	130	130	2.78
0.75 - 1.1 2p / 0.55 - 0.75 4p	18707071					
1.5 - 2.2 2p / 1.1 - 1.5 4p	18707072	F2+47				
3 - 4 2p / 2.2 - 4 4p	18707073	F2-18	170		210	3.12

20091236

DPV 85 B		V(S)F D = 165				
Motor [kW]	Art. nr.	C	H	A	B	Weight [kg]
5.5 - 7.5	18707064	F2- 16	180	210	250	0.830

20071047-B

### 6.2 Thrust bearing housing (optional)

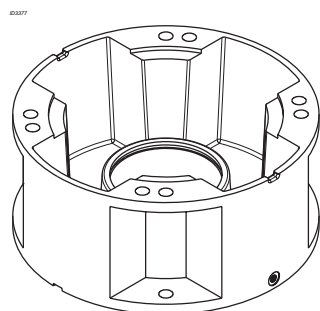





Figure 17: Thrust bearing housing

20070627-E

The standard DP-Pumps motors are specially designed to drive the pump. When a standard motor has to be installed (or a special motor to fulfil 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**  
This option is not applicable for pump model DPVM.
-  **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.

# 7 Materials

## 7.1 Parts overview

### 7.1.1 Part list

Part. no.	part description	material code	Wetted part	VC	V	VS	
101	Pump casing	JL1040	X	●			
		1.4308	X		●		
		1.4408	X			●	
		(Collar) flange	1.4408	X		●	●
			1.4308				○
10-6	Pump shroud	1.4301	X	●	●		
		1.4404	X			●	
108	Stage Casing DPV 85 B	1.4308	X	●	●		
		1.4408	X			●	
108	Stage Casing DPV 2,4,6,10,15 B	1.4301	X	●	●		
		1.4404	X			●	
160	Cover DPV 85 B	1.4308	X		●		
		1.4408	X			●	
160	Cover DPV 2,4,6,10,15 B	1.4301	X	●	●		
		1.4404	X			●	
210	Shaft	1.4057	X	●	●		
		1.4460	X			●	
230	Impeller DPV 85 B	1.4308	X	●	●		
		1.4408	X			●	
230	Impeller DPV 2,4,6,10,15 B	1.4301	X	●	●		
		1.4404	X			●	
341	Motor stool	JL1040	X	●	●	●	
412	Pump sealing elastomers	EPDM	X	●	●	○	
		EPDM WRc/ACS	X	○	○	○	
		Viton	X	○	○	●	
		EPDM 559236	X	○	○	○	
		HNBR	X	○	○	○	
433	Shaft seal LP (P at Q=0 < 9.2bar)	B Q 1 E GG LP	X	●	●	○	
		Q1 B E GG HP <sup>1</sup>	X	●	●	○	
	Shaft seal LP (P at Q=0 < 9.2bar)	B Q1 V GG LP	X	○	○	●	
		Q1 B V GG HP <sup>1</sup>	X	○	○	●	
45-4	Spacer DPV(C/S) 85 B	EPDM	X	●	●	○	
		Viton	X	○	○	●	
		HNBR	X	○	○	○	
471	Seal cover	1.4308	X	●	●	○	
		1.4408	X	○	○	●	
503	Impeller wear ring DPV 85 B	1.4404	X	●	●	●	
525	Spacer sleeve	1.4301	X	●	●		
		1.4404	X			●	
529	Bearing sleeve	Tungsten Carbide	X	●	●	●	
Part of 108	Bearing	Aluminium Oxide	X	●	●	●	
722	Taper piece	JL1040		●	●	●	
862	Coupling greater-than or equal to 5.5 kW	JS1030		●	●	●	
	Coupling less-than or equal to 4 kW	Aluminium	X	●	●	●	

Part. no.	part description	material code	Wetted part	VC	V	VS
890	Base plate	JS1030		●	●	●
	Base plate	1.4308			○	○
	Base plate (for F connection)	JL1040			●	●
903.02	Screwed plug (drain)	1.4301 (A2)	X	●	●	
		1.4404 (A4)	X			●
905	Tie bolt	1.4057		●	●	●
903.01	Screwed plug (vent)	1.4301 (A2)	X	●	●	
		1.4404 (A4)	X			●
920.01	Lock nut	1.4301	X	●	●	
		1.4404	X			●
930	Safety device Nord-lock	1.4404	X	●	●	●
932	Circlip	1.4571	X	●	●	●
950	Wave spring DPV(C/S) 2,4,6,10,15 B	1.4301	X	●	●	○
		1.4401	X	○	○	●

1. HP: high pressure version > 10 bar (P at Q=0 > 9.2 bar)

● Standard ○ Option

### 7.1.2 Materials conversion

Material	Description	Code and material nr.	Standard	ASTM / AISI <sup>1</sup>
JL 1040	Cast iron	GJL-250	EN 1561	A48:40B
JS1030	Cast iron	GJS-400	EN 1563	
1.4057	Chromium-nickel steel	X17CrNi16-2--QT800	EN 10088-3	A276:431
1.4301	Chromium-nickel steel	X5CrNi18-10	EN 10088	A276:304
1.4305	Chromium-nickel steel	X8CrNiS 18-9	EN 10088	A276:303
1.4308	Chromium-nickel cast steel	GX5CrNi 19-10	EN 10283	A743:CF8
1.4401	Chromium-nickel-molybdenum steel	X5CrNiMo 17-12-2	EN 10088	A276:316
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
1.4460	Chromium-nickel-molybdenum steel	X3CrNiMoN 27 5 2	EN 10088	--:329
1.4571	Chromium-nickel-molybdenum steel	X6CrNiMoTi17-12-2	EN 10088	A276:316Ti

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

7.1.3 Sectional drawing DPVCF 2/4/6 B

ESD/14

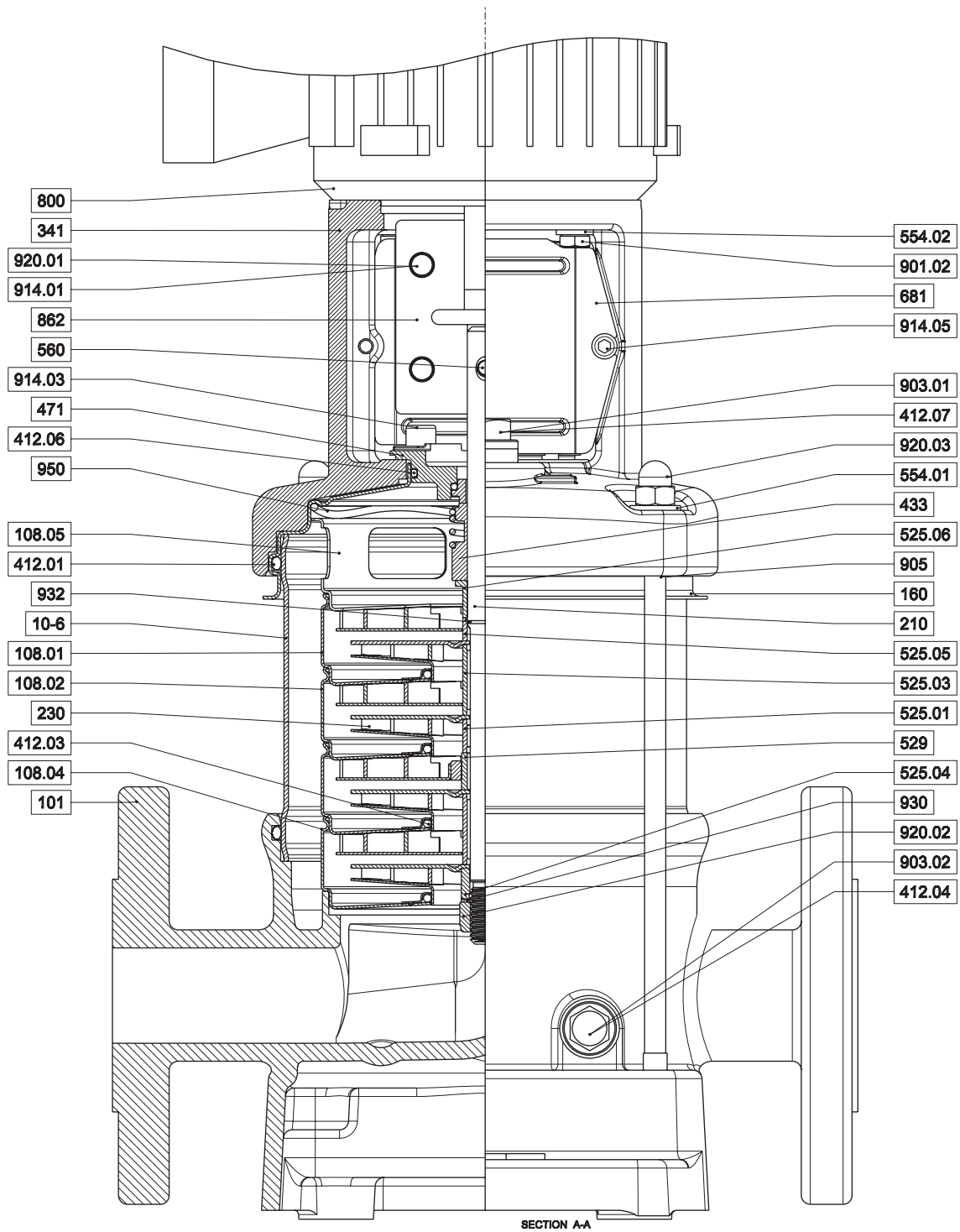


Figure 18: Sectional drawing DPVCF 2/4/6 B

7.1.4 Sectional drawing DPV(S) 2/4/6 B

82913

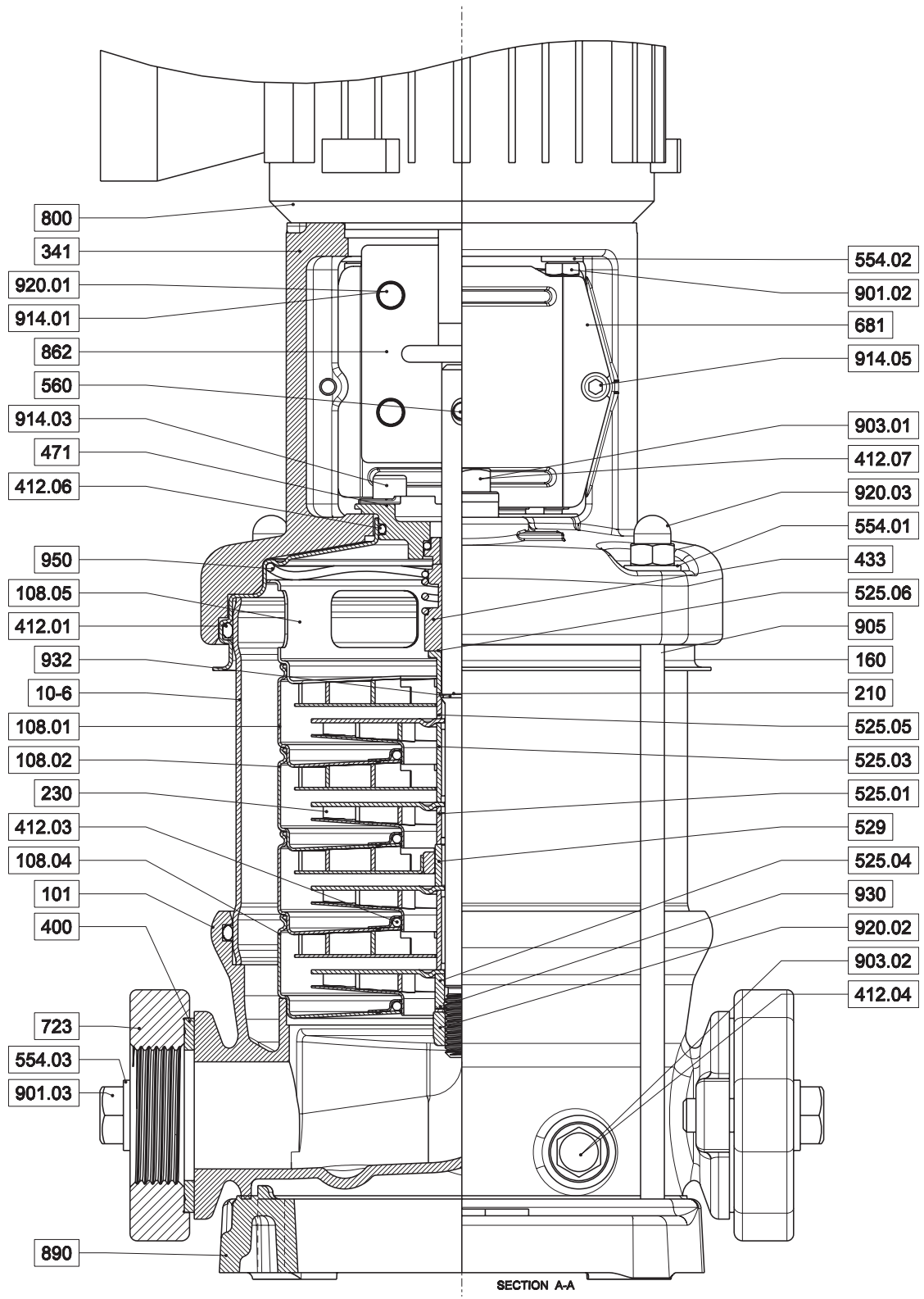


Figure 19: Sectional drawing DPV(S) 2/4/6 B

20080766-F



7.1.5 Sectional drawing DPVCF 10 B

ESD/14

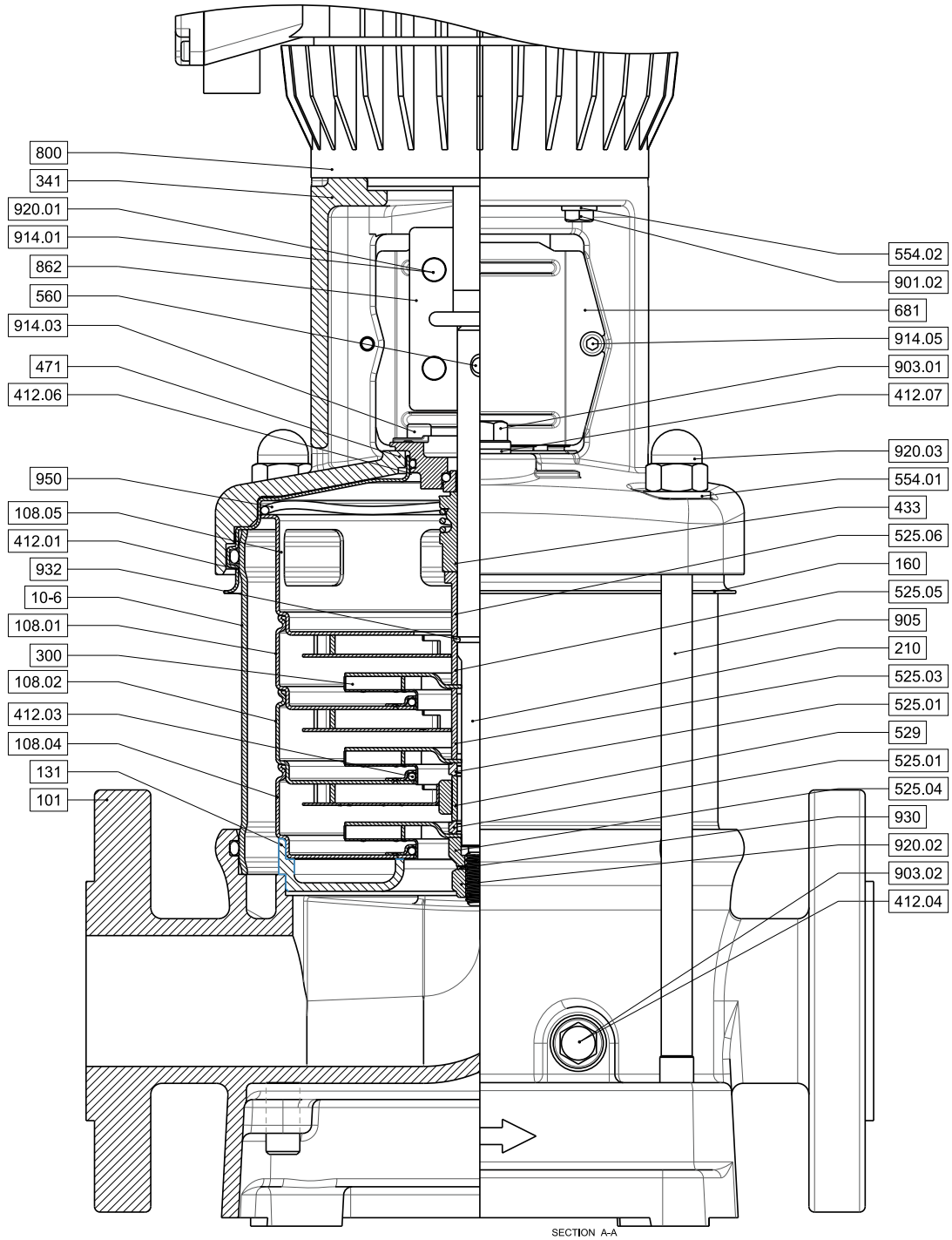


Figure 20: Sectional drawing DPVCF 10 B



7.1.6 Sectional drawing DPV(S) 10 B

82412

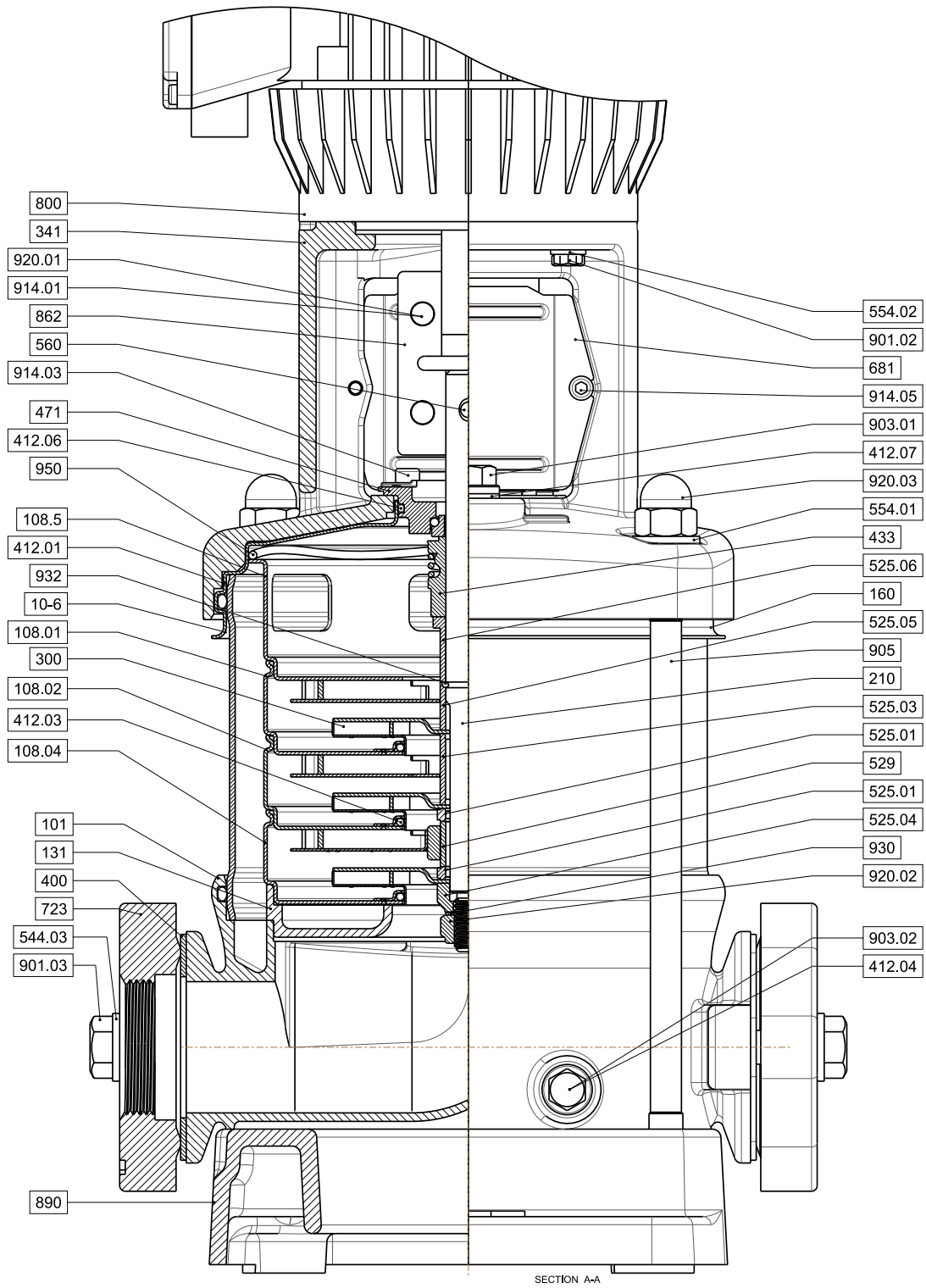


Figure 21: Sectional drawing DPV(S) 10 B

20080645-C



7.1.7 Sectional drawing DPVCF 85 B

0320

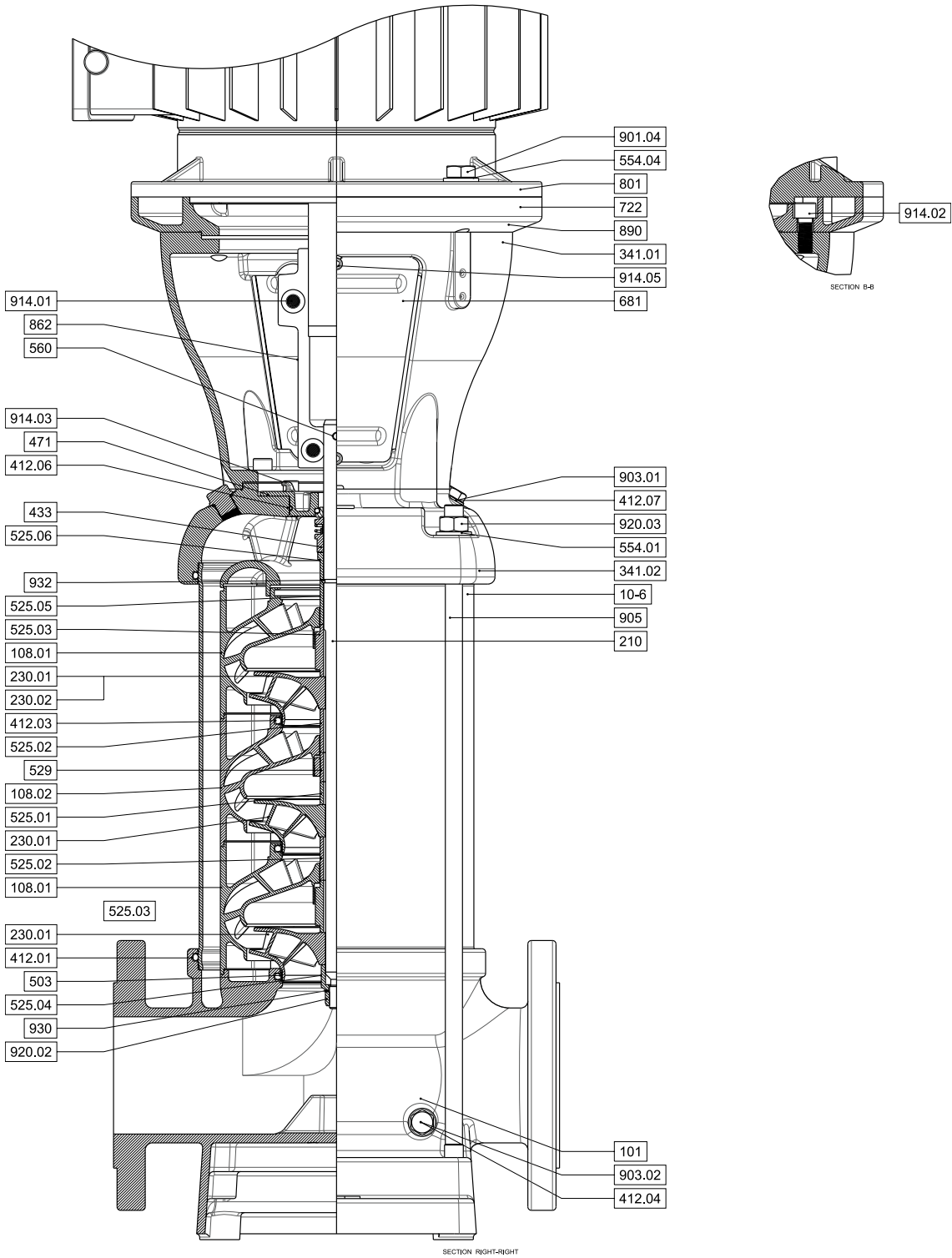


Figure 22: Sectional drawing DPVCF 85 B

7.1.8 Sectional drawing DPV(S)F 85 B

02/2019

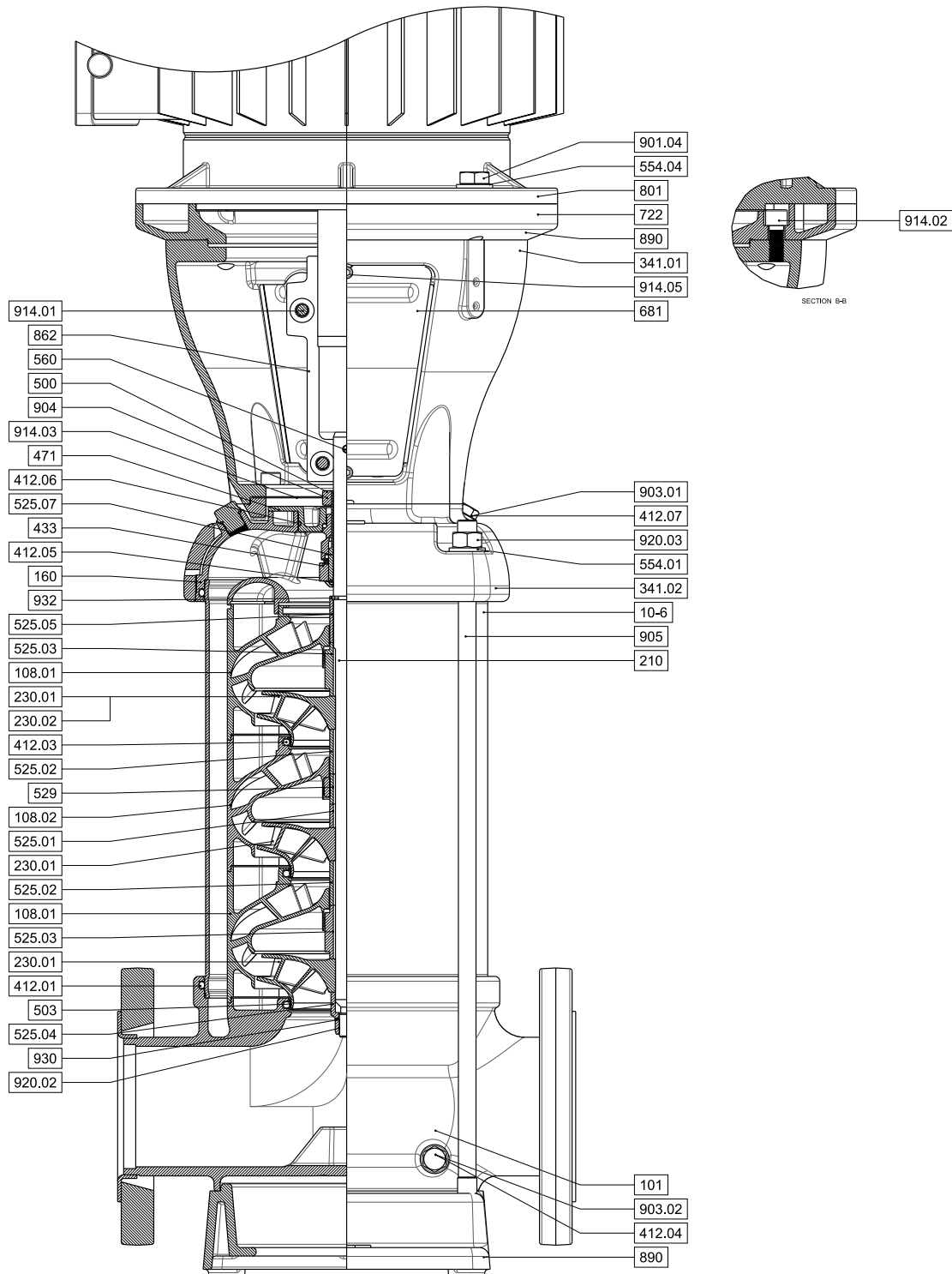


Figure 23: Sectional drawing DPV(S)F 85 B

20080066-E



# 8 Medium handled

## 8.1 Medium handled

Media description	Media group	Chemical formula	Cons. max. [%]	PH max.	Temp max. {C}	Model	Material shaft seal			Material pump
							rotor	stator	elas-tomer	
Acetic anhydride	Weak acid derivative	(CH <sub>3</sub> CO) <sub>2</sub> O				V	SiC	Ca	EPDM	EPDM
Acetone	Ketone	(CH <sub>3</sub> ) <sub>2</sub> CO				VC	SiC	Ca	EPDM	EPDM
Alcaline (bottle rinse)	Rinsing		2	< 9.5	40	V	TuC	TuC	HNBR	HNBR
Alcohol (Ethanol)	Hydrocarbon	C <sub>2</sub> H <sub>5</sub> OH	100		60	V	SiC	Ca	EPDM	EPDM
Alum (potassium aluminium sulphate)	Salt	MI MIII (SO <sub>4</sub> ) <sub>2</sub>	3		80	VS	SiC	Ca	Viton	Viton
Aluminium chloride	Halide	AlCl <sub>3</sub>	5		50	VS	SiC	Ca	EPDM	EPDM
Aluminium chloride	Halide	AlCl <sub>3</sub>	10		20	VS	SiC	Ca	EPDM	EPDM
Aluminium chloride	Halide	AlCl <sub>3</sub>	25		20	VS	SiC	Ca	EPDM	EPDM
Aluminium sulphate	Salt	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>			20	V	SiC	Ca	EPDM	EPDM
Aluminium sulphate	Salt	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	5		60	V	TuC	TuC	Viton	Viton
Aluminium sulphate	Salt	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	5		Boiling	VS	SiC	Ca	EPDM	EPDM
Ammonia	Strong base	NH <sub>3</sub>				VC	SiC	Ca	EPDM	EPDM
Ammonium bicarbonate	Salt	(NH <sub>4</sub> )HCO <sub>3</sub>	10		40	V	SiC	Ca	EPDM	EPDM
Ammonium sulphate	Salt	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	20		60	V	SiC	Ca	EPDM	EPDM
Antifreeze (glycol base, salt-free)	Alcohol		45		110	V	SiC	Ca	EPDM	EPDM
Beer (not lathery / under pressure)	Alcohol		100		15	V	SiC	Ca	EPDM	EPDM
Benzene	Hydrocarbon solvent	C <sub>6</sub> H <sub>6</sub>				VS	SiC	Ca	Viton	Viton
Boric acid	Acid	H <sub>3</sub> BO <sub>3</sub>				V	SiC	Ca	EPDM	EPDM
Buttermilk	Dairy product	fats + water	100		60	V	SiC	Ca	EPDM	EPDM
Butyl alcohol (butanol)	Hydrocarbon	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>3</sub> OH					SiC	Ca	EPDM	EPDM
Calcium acetate	Salt	C <sub>4</sub> H <sub>6</sub> O <sub>4</sub> Ca	10		60	VS	SiC	Ca	EPDM	EPDM
Calcium nitrate (non-acidic)	Salt	Ca(NO <sub>3</sub> ) <sub>2</sub>	10		60	VS	TuC	TuC	Viton	Viton
Cider (apple cider)	Alcohol	H <sub>2</sub> O + sucrose + alcohol	100		40	V	SiC	Ca	EPDM	EPDM
Copper sulphate	Salt	CuSO <sub>4</sub> -5H <sub>2</sub> O	5		80	V	TuC	TuC	HNBR	HNBR
Corn oil	Vegetable oil		100		100	V	SiC	Ca	Viton	Viton
Diethylene glycol (salt-free)	Alcohol	C <sub>4</sub> H <sub>10</sub> O <sub>3</sub>	100		100	VC	SiC	Ca	EPDM	EPDM
Ethanol (alcohol)	Hydrocarbon	C <sub>2</sub> H <sub>5</sub> OH	100		60	V	SiC	Ca	EPDM	EPDM
Ethylene glycol (salt-free)	Alcohol	(CH <sub>2</sub> OH) <sub>2</sub>	100		100	V	SiC	Ca	EPDM	EPDM
Ferric-II-sulphate	Salt	FeCl <sub>3</sub>	5		80	V	TuC	TuC	Viton	Viton
Fuel oil (light)	Hydrocarbon				80	VS	SiC	Ca	Viton	Viton
Glycerin (glycerol)	Alcohol	C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	40		80	V	SiC	Ca	EPDM	EPDM
Kerosene	Hydrocarbon		100		80	V	SiC	Ca	Viton	Viton

Media description	Media group	Chemical formula	Cons. max. [%]	PH max.	Temp max. {C}	Model	Material shaft seal			Material pump
							rotor	stator	elastomer	
Linseed oil	Vegetable oil		100		60	V	SiC	Ca	Viton	Viton
Linseed oil + 3% sulphur acid	Vegetable oil		100		60	V	SiC	Ca	Viton	Viton
Magnesium sulphate	Salt	MgSO <sub>4</sub>	10		80	V	SiC	Ca	Viton	Viton
Malic acid	Acid	C <sub>4</sub> H <sub>2</sub> O <sub>3</sub>				V	SiC	Ca	Viton	Viton
Methyl glycol (propylene glycol)	Alcohol	C <sub>3</sub> H <sub>6</sub> (OH) <sub>2</sub>	100		20	VC	SiC	Ca	EPDM	EPDM
Milk	Dairy product	fats + water				V	SiC	Ca	EPDM	EPDM
Olive oil	Vegetable oil					VC	SiC	Ca	Viton	Viton
Oxalic acid	Acid	H <sub>2</sub> C <sub>2</sub> O <sub>4</sub>	5		20	V	SiC	Ca	EPDM	EPDM
Oxalic acid	Acid	H <sub>2</sub> C <sub>2</sub> O <sub>4</sub>	5		Boiling	V	SiC	Ca	Viton	Viton
Oxalic acid	Acid	H <sub>2</sub> C <sub>2</sub> O <sub>4</sub>	10		60	V	SiC	Ca	EPDM	EPDM
Paraffins	Hydrocarbon					V	SiC	Ca	Viton	Viton
Peanut oil	Vegetable oil		100		90	V	SiC	Ca	Viton	Viton
Petroleum	Hydrocarbon	Hydrocarbon	100		80	V	SiC	Ca	Viton	Viton
Potassium chlorate	Salt	KClO <sub>3</sub>				VS	TuC	TuC	HNBR	HNBR
Potassium chloride	Salt	KCl				V	SiC	Ca	EPDM	EPDM
Potassium hydroxide	Salt	KOH	5		40	VS			EPDM	EPDM
Potassium nitrate	Salt	KNO <sub>3</sub>	5		30	VS	TuC	TuC	HNBR	HNBR
Potassium sulphate	Salt	K <sub>2</sub> SO <sub>4</sub>	3		20	VS	SiC	Ca	Viton	Viton
Rape-seed oil	Vegetable oil	mixture			100	VS	SiC	Ca	Viton	Viton
Sodium carbonate	Salt	Na <sub>2</sub> CO <sub>3</sub>	6		60	V	SiC	Ca	EPDM	EPDM
Sodium hydroxide (soda lye)	Salt	NaOH	5		40	V	TuC	TuC	HNBR	HNBR
Sodium nitrate (non acidic)	Salt	NaNO <sub>3</sub>	10		60	V	SiC	Ca	EPDM	EPDM
Sodium phosphate	Salt	Na <sub>3</sub> PO <sub>4</sub>				V	SiC	Ca	EPDM	EPDM
Sodium sulphate (non acidic)	Salt	Na <sub>2</sub> SO <sub>4</sub>	5		60	V	SiC	Ca	EPDM	EPDM
Soybean oil	Vegetable oil		100		100	V	SiC	Ca	Viton	Viton
Spirits	Alcohol	H <sub>2</sub> O + sucrose + alcohol	40		60	V	SiC	Ca	EPDM	EPDM
Sulphuric acid	Acid	H <sub>2</sub> SO <sub>4</sub>	5		30	VS	TuC	TuC	Viton	Viton
Tannic acid	Acid	C <sub>76</sub> H <sub>52</sub> O <sub>46</sub>	20		80	V	SiC	Ca	Viton	Viton
Tartaric acid	Acid	C <sub>4</sub> H <sub>6</sub> O <sub>6</sub>	8		40	VS	SiC	Ca	Viton	Viton
Vinegar (wine vinegar)	Acid	CH <sub>3</sub> COOH	10		60	VS	SiC	Ca	EPDM	EPDM
Water, untreated / suspended solids <20 ppm	Water	H <sub>2</sub> O + ...	100		60	VC	TuC	Ca	EPDM	EPDM
Water, boiler feed water (conform. Vd TÜV 1466	Water	H <sub>2</sub> O + ...	100		120	VC	TuC	Ca	EPDM	EPDM E425
Water, brackish	Sea water	H <sub>2</sub> O + ...	100	7	5	V	TuC	TuC	Viton	Viton
Water, brackish	Sea water	H <sub>2</sub> O + ...	100	7	10	V	TuC	TuC	Viton	Viton
Water, brackish	Sea water	H <sub>2</sub> O + ...	100	7	15	VS	TuC	TuC	Viton	Viton
Water, brackish	Sea water	H <sub>2</sub> O + ...	100	7	20	VS	TuC	TuC	Viton	Viton
Water, brackish	Sea water	H <sub>2</sub> O + ...	100	7	25	VS	TuC	TuC	Viton	Viton
Water, coast water	Sea water	H <sub>2</sub> O + ...	100	7	5	VS	TuC	TuC	Viton	Viton
Water, coast water	Sea water	H <sub>2</sub> O + ...	100	7	10	VS	TuC	TuC	Viton	Viton
Water, coast water	Sea water	H <sub>2</sub> O + ...		7	15	VS	TuC	TuC	Viton	Viton



Media description	Media group	Chemical formula	Cons. max. [%]	PH max.	Temp max. {C}	Model	Material shaft seal			Material pump
							rotor	stator	elastomer	elastomer
Water, condensate (conform Vd TÜV 1466)	Water	H <sub>2</sub> O + ...	100		100	VS	TuC	TuC	EPDM	EPDM
Water, cooling water	Water	H <sub>2</sub> O + ...			100	VS	TuC	TuC	Viton	Viton
Water, de-carbonised (softened)	Water	H <sub>2</sub> O + ...	100		120	V	TuC	TuC	HNBR	HNBR
Water, de-ionised	Water	H <sub>2</sub> O + ...			120	VS	SiC	Ca	EPDM	EPDM
Water, distilled	Water	H <sub>2</sub> O + ...				V	SiC	Ca	EPDM	EPDM
Water, fire fighting	Water	H <sub>2</sub> O + ...	100		60	VC	TuC	TuC	HNBR	HNBR
Water, harbour	Sea water	H <sub>2</sub> O + ...	100	7	5	VS	TuC	TuC	Viton	Viton
Water, harbour	Sea water	H <sub>2</sub> O + ...	100	7	10	VS	TuC	TuC	Viton	Viton
Water, heating (conform Vd TÜV 1466)	Water	H <sub>2</sub> O + ...	100		120	VC	SiC	Ca	EPDM	EPDM
Water, (conform VDI 2035)	Water	H <sub>2</sub> O + ...	100		100	VC	TuC	Ca	EPDM	EPDM
Water, oil water mixture	Water		5		80	V	SiC	Ca	Viton	Viton
Water, ordinary sea water	Sea water	H <sub>2</sub> O + ...	100	7	5	V	TuC	TuC	Viton	Viton
Water, ordinary sea water	Sea water	H <sub>2</sub> O + ...	100	7	10	VS	TuC	TuC	Viton	Viton
Water, ordinary sea water	Sea water	H <sub>2</sub> O + ...	100	7	15	VS	TuC	TuC	Viton	Viton
Water, ordinary sea water	Sea water	H <sub>2</sub> O + ...	100	7	20	VS	TuC	TuC	Viton	Viton
Water, pure (chemically neutral)	Water	H <sub>2</sub> O + ...	100		60	V	SiC	Ca	EPDM	EPDM
Water, rinsing	Water	H <sub>2</sub> O + ...			70	VS	TuC	TuC	Viton	Viton
Water, swimming-pool (chlorine 0.8 mg/l)	Water	H <sub>2</sub> O + ...			25	VS	SiC	Ca	Viton	Viton
Water, tap (drinking water)	Water	H <sub>2</sub> O + ...	100		60	V	SiC	Ca	EPDM	EPDM WRC/ ACS



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