

Multi-stage centrifugal pumps DPV / ASME

Technical specification booklet

Series: DPV(C/S) 2 - 4 - 6 - 10 - 15 - 25 - 40 - 60 - 85 - 125

60 Hz (ASME / NEMA)



LENNTECH

info@lennotech.com Tel. +31-152-610-900
www.lennotech.com Fax. +31-152-616-289



Table of Contents

1 Pump introduction

1.1 General.....	5
1.2 Model key	5
1.3 Operation.....	6
1.4 Measuring, draining and venting	6
1.5 Working range	6
1.6 Basic material variants	7
1.7 Pump bearing	7
1.8 Modular selection	7
1.9 Approvals	7

2 Performance characteristics

2.1 Performance range.....	8
2.2 Performance curve details.....	8
2.3 Minimum efficiency index	9
2.4 Performance with variable frequency drive	9
2.5 How to read the values from the curves	10

3 Curves and dimensions

3.1 Hydraulic performance curve DPV 2 B - 60Hz - 2 pole	12
3.2 Dimensions DPV 2 B	13
3.3 Hydraulic performance curve DPV 4 B - 60Hz - 2 pole	14
3.4 Dimensions DPV 4 B	15
3.5 Hydraulic performance curve DPV 6 B - 60Hz - 2 pole	16
3.6 Dimensions DPV 6 B	17
3.7 Hydraulic performance curve DPV 10 B - 60Hz - 2 pole	18
3.8 Dimensions DPV 10 B	19
3.9 Hydraulic performance curve DPV 15 B - 60Hz - 2 pole	20
3.10 Dimensions DPV 15 B	21
3.11 Hydraulic performance curve DPV 25 B - 60Hz - 2 pole	22
3.12 Dimensions DPV 25 B	23
3.13 Hydraulic performance curve DPV 40 B - 60Hz - 2 pole	24
3.14 Dimensions DPV 40 B	25
3.15 Hydraulic performance curve DPV 60 B - 60Hz - 2 pole	26
3.16 Dimensions DPV 60 B	27
3.17 Hydraulic performance curve DPV 85 B - 60Hz - 2 pole	28
3.18 Dimensions DPV 85 B	29
3.19 Hydraulic performance curve DPV 125 B - 60Hz - 2 pole	30
3.20 Dimensions DPV 125 B	31
3.21 Hydraulic performance curve DPLHS 6 - 60Hz - 2 pole	32
3.22 Dimensions DPLHS 6	33

4 Seals

4.1 Mechanical seal option specifications	34
---	----

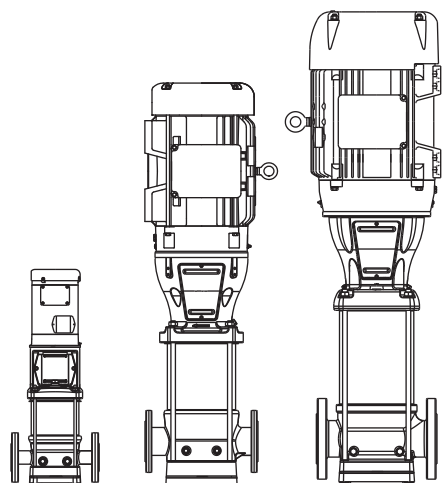
5 Motors

5.1 General.....	35
------------------	----

6	Materials	
6.1	Parts overview	36
7	Medium handled	
7.1	Medium handled	38

1 Pump introduction

1.1 General



DPV2-4-6-
10-15 B

DPV25- 40-
60 B

DPV 85B - 125

The vertical, single or multi-stage 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, multi-stage centrifugal DPV pumps are produced by DP-Pumps.

1.2 Model key

Table 1: Model key Example DPVSF 85/3-1 B

	DP	VS	F	85	/3	-1	B	
Label	DP							Product Label
Material/Construction		VC						Cast Iron pump foot and top bracket, hydraulics AISI 304
		V						All wetted parts Stainless Steel AISI 304
		VS						All wetted parts Stainless Steel AISI 316
Connection			F					Round flange
				85				Capacity in m ³ /h at Q _{opt.} (in m ³ /h)
					/3			Number of stages
						-1		Number of stages of which one stage with reduced head
							B	Design version

1.3 Operation

030027

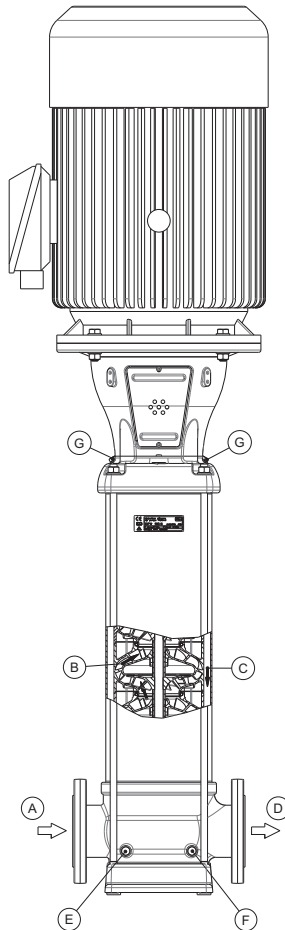


Figure 1: DPVF 85

20080190-A/27022008

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 1/4 connection.

Connection (F) is meant to drain the outlet part of the pump. Or to measure the discharge pressure using a G 1/4 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. 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 [°F]	-4 up to 104	¹
Minimum inlet pressure	NPSH _{req.} + 3ft	
Viscosity [cSt]	1-100	²
Density [lbs/ft ³]	62-156	²
Cooling	forced motor cooling	³
Minimum frequency [Hz]	10	
Maximum frequency [Hz]	60	⁴
Allowable size of solids pumped	2500 to 18 Mesh	

1. If the ambient temperature exceeds the above value or the motor is located more than 3280 ft above sea level, the motor cooling is less effective and could require an adapted motor power. See table 5: 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.
4. Pumps that are intended for 50 Hz operation, may not be connected to 60 Hz power supply.

1.5.1 Minimum capacity

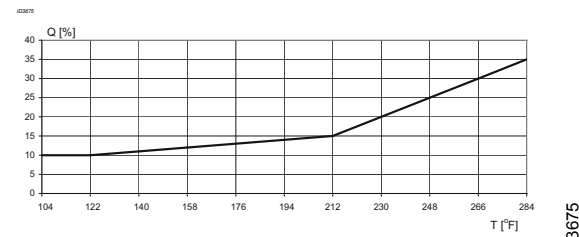
For minimum capacity at medium temperature of 68 °F, see below table 3.; In case of higher medium temperatures, see table 4.

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.

Table 3: Minimum capacity (Q_{min}) in 60Hz

size	Q_{min} [GPM]
2	0.9
4	2.2
6	3.5
10	5.7
15	8.8
25	14.1
40	21.1
60	31.7
85	44.9
125	69.9

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 if the motor is located more than 3280ft above sea level, the motor cooling is less effective and could require an adapted motor power. See below table for the increased percentage of the motor power or contact your supplier for more detailed advice.

Table 5: Increase of required motor power

Ambient temperature [°F]	Above sea level [ft]	Increase of required power
104	3280	0%
113	5330	2%
122	7382	5%
131	9432	11%
140	11483	18%
149	13530	25%
158	15584	33%

1.6 Basic material variants

Table 6: Basic material variants

Model	Hydraulic	Casing	Sealing
V	AISI304	AISI304	EPDM
VS	AISI316	AISI316	FPM
VC	AISI304	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. Temperature range -4 up to 284 °F, with the exception of the DPV 125 this pump can be used up to 248 °F.
- **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
NSF Drinking water approval

2 Performance characteristics

2.1 Performance range

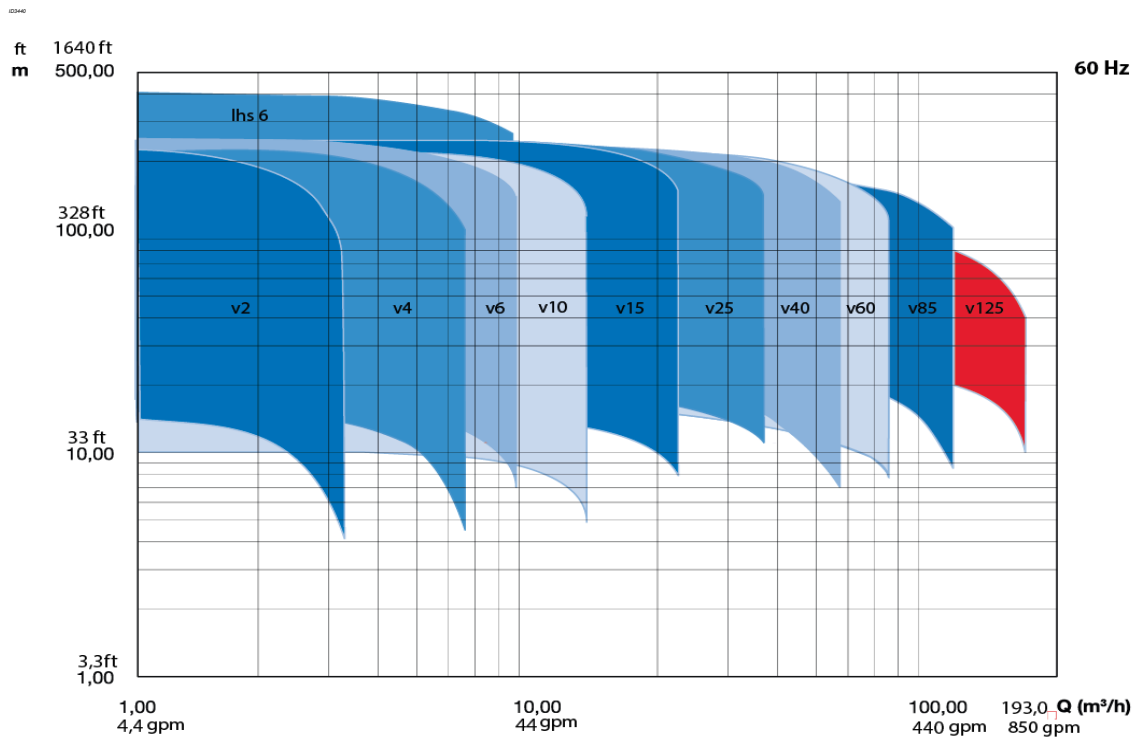


Figure 2: Performance range DPV(C/S) 60 Hz

2.2 Performance curve details

8

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: 2012 (Grade 3B).

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 7: Rated motor power and speed at 2 pole

Rated motor power [hp]	Rated speed at 60 Hz [rpm]
0.5 up to 3	3460
5	3510
7.5 and 10	3530
15 up to 50	3550

The maximum required power for the hydraulics to cover the curve (run-out performance) is mentioned on the name plate of the pump. This power corresponds to above mentioned rated speeds. In the pump curves also the required hydraulic power on a specific duty point can be determined.

In case of using a motor with another rated speed as mentioned in the table, please recalculate the required power according the formula in figure 3.

To cover the required hydraulic power all pumps are pre-equipped with a support flange to fit the specific rated motor power, see pump data. In some cases on this rated power it will be necessary to use a part of the common motor service factor*) to cover the “run-out performance” of the pump.

In those cases to a maximum of 15% on the rated power will be required. As the pumps apply to ISO9906:2012 Grade 3B tolerances we recommend to use motors which have a 1.25 service factor.

*) The service factor is the allowed exceeded power of the motor rated power which may be used incidentally. Per motor brand this value can differ and therefore needs to be checked before installation.

The characteristics given are based on:

- De-aerated water at a temperature of 68 °F
- Density of 62 lbs/ft³
- Kinematic viscosity of 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 Minimum efficiency index

The minimum energy-efficiency level according to the ErP regulations for water pumps is specified by the minimum efficiency index MEI. A high MEI value indicates a high efficiency of the determined pump. From 1 January 2015 on the minimum efficiency index (MEI) for standardised water pumps is ≥ 0.4 .

For the DPV pump ranges the following values are applicable:

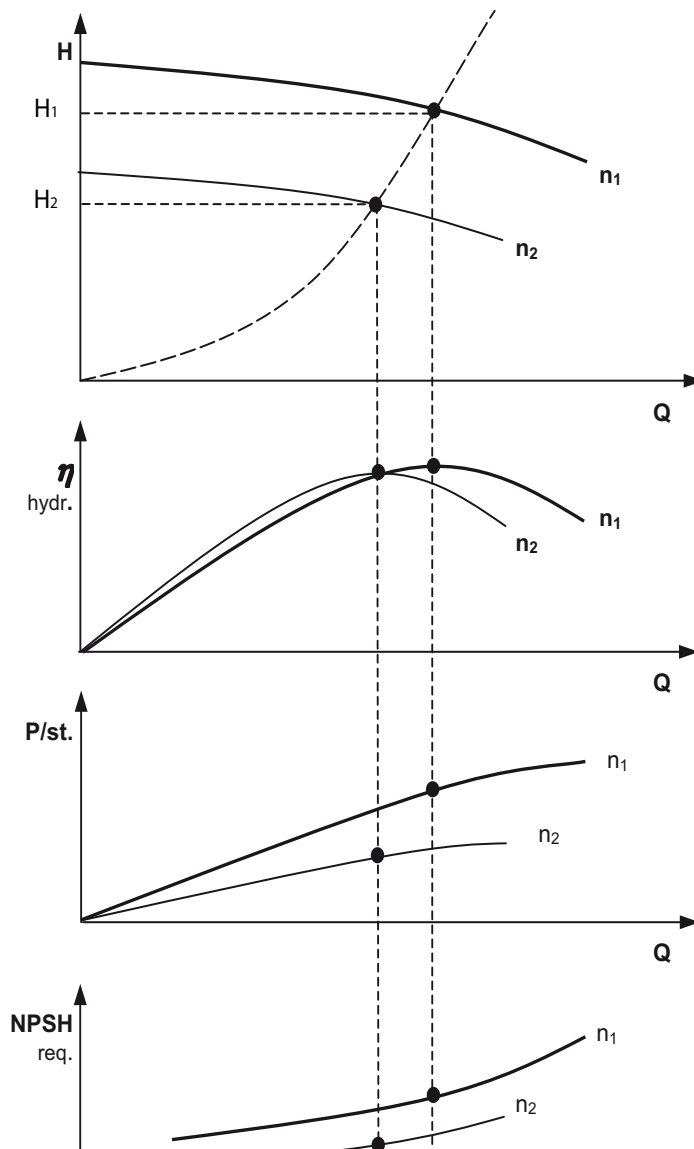
Table 8: Minimum efficiency index

Pump range	Minimum Efficiency index
DPV 2	MEI ≥ 0.70
DPV 4	MEI ≥ 0.70
DPV 6	MEI ≥ 0.70
DPV 10	MEI ≥ 0.70
DPV 15	MEI ≥ 0.40
DPV 25	MEI ≥ 0.70
DPV 40	MEI ≥ 0.70
DPV 60	MEI ≥ 0.70
DPV 85	MEI ≥ 0.60
DPV 125	MEI ≥ 0.70
DPLHS 6	MEI ≥ 0.60

2.4 Performance with variable frequency drive

The minimum frequency of the motor should be limited to 30 Hz. 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.



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

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

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

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

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

3238/08072008

Figure 3: Performance characteristics

2.5 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.

How to read the motor power.

The required motor power can be read in the curve 'Power input'.

Attention: the power value as mentioned in this curve is the required power per stage. For some pump types there are two lines in the curve this is related to the full impeller or reduced impeller [-1].

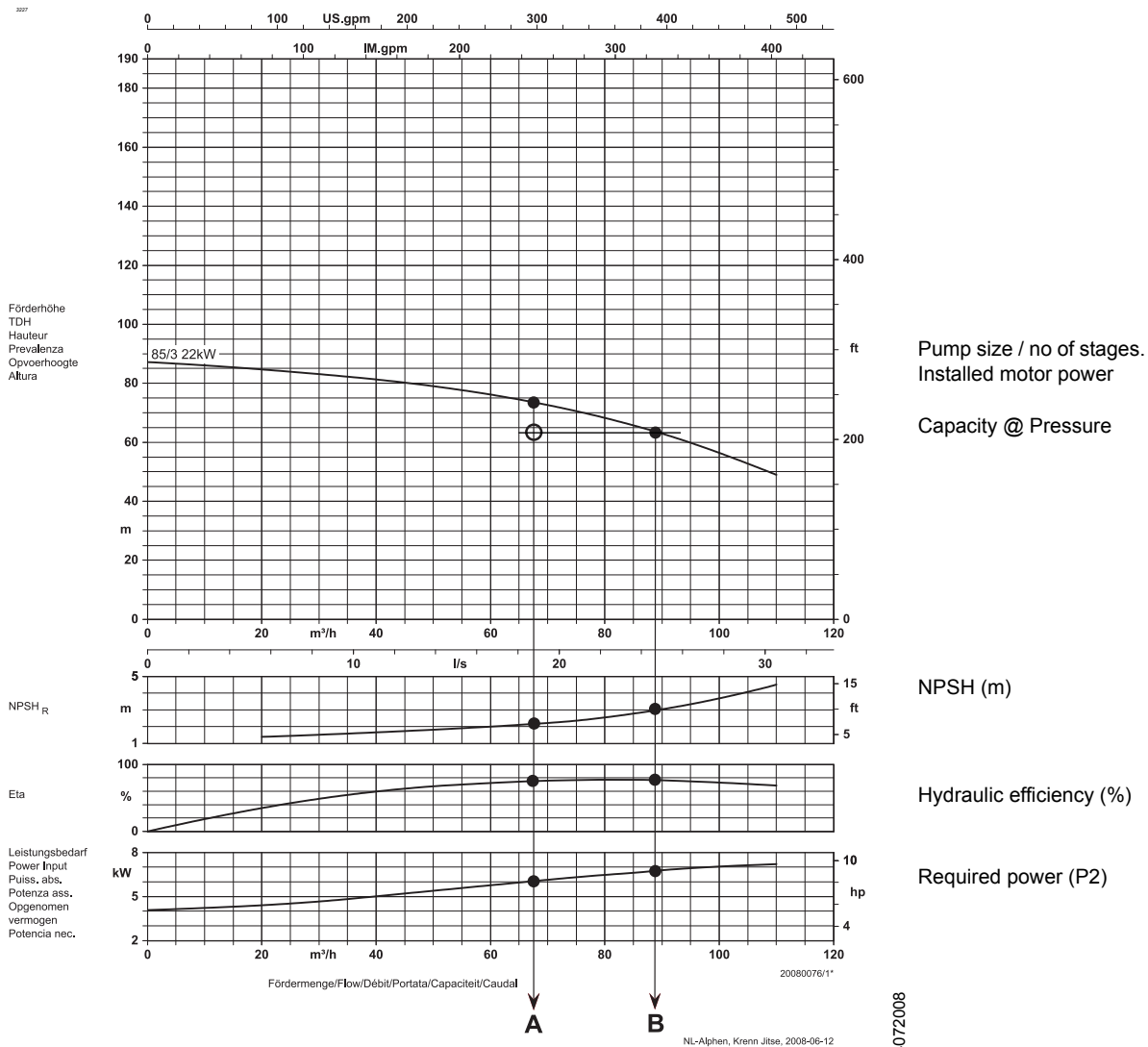


Figure 4: How to read the values from the curves

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

3 Curves and dimensions

3.1 Hydraulic performance curve DPV 2 B - 60Hz -2 pole

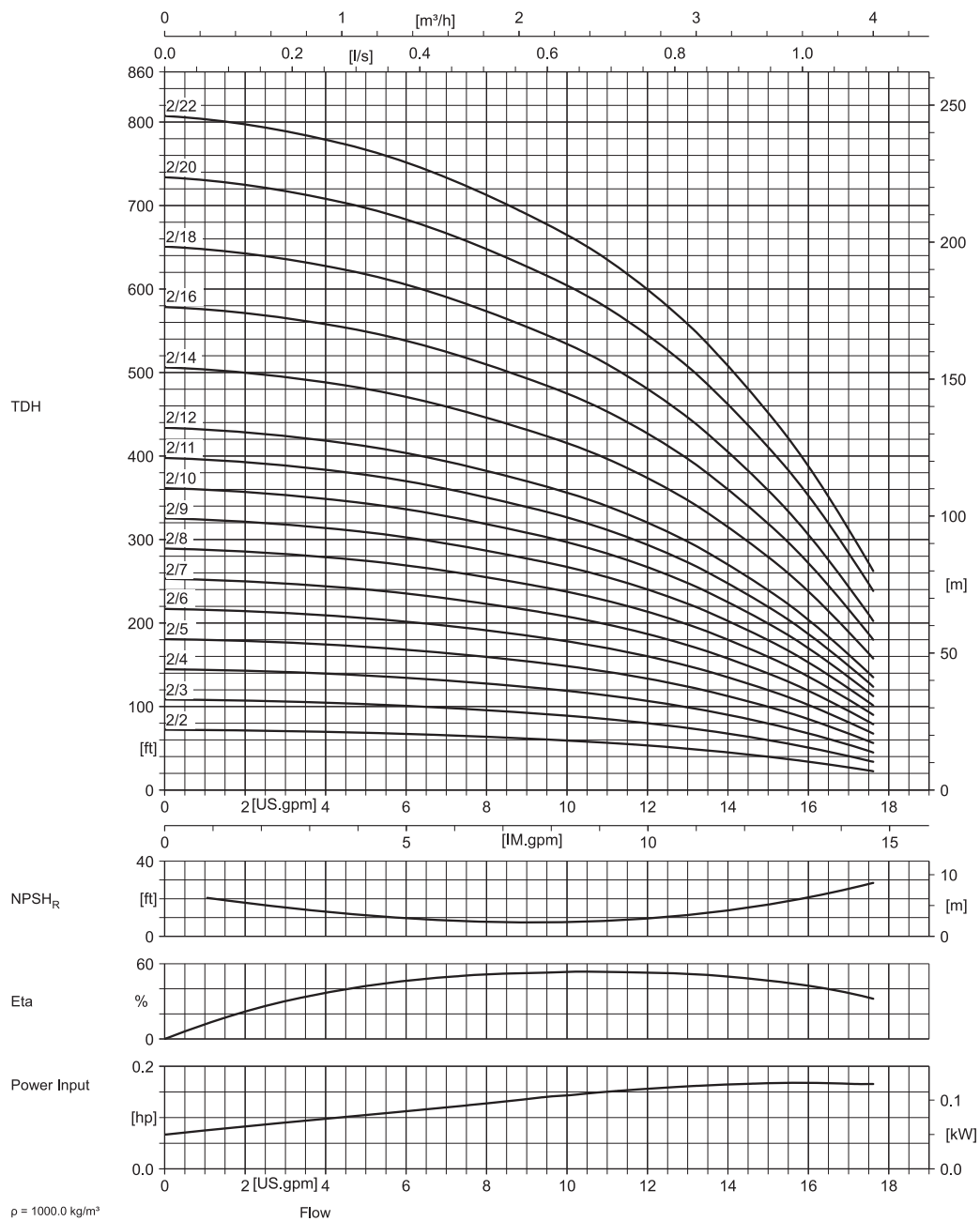


Figure 5: Performance curve DPV 2 B - 60Hz - 2 pole

20090370-C

3.2 Dimensions DPV 2 B

Table 9: Layout and connections

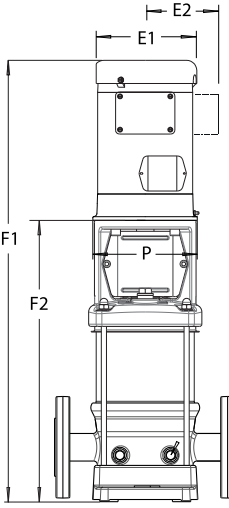
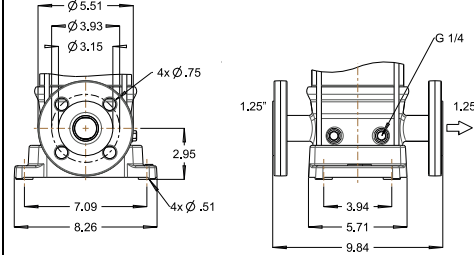
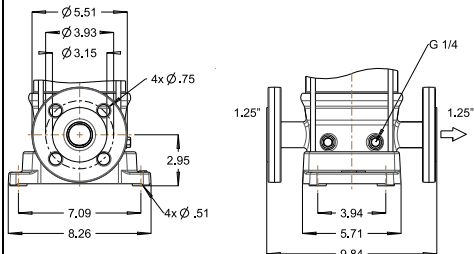
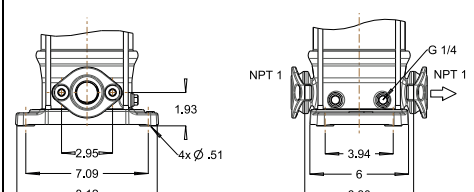
		Standard DPV(C/S)F Collar flanges in cast iron Norm: ASME B16.1 Size: 1.25" (NPS 5/4) Pressure Class: Class250 Option: base plate in AISI304
		Optional DPV(S)F Collar flange in AISI304 Norm: ASME B16.5 Size: 1.25" (NPS 5/4) Pressure Class: Class300 Option: base plate in AISI304
		Optional DPV(S) Counter flange with female thread in cast stainless steel Norm: ASME B1.20.1 Size: NPT 1" Pressure Class: Class150 Option: base plate in AISI304

Table 10: Dimensions and weights

Model	Frame size	Power req. [hp]	Motor dimensions*			DPV(C/S)F		Bare shaft mass [lbs]	Mass with motor* [lbs]	DPV(S)		Bare shaft mass [lbs]	Mass with motor* [lbs]
			E1 [inch]	E2 [inch]	P [inch]	F1 [inch]	F2 [inch]			F1 [inch]	F2 [inch]		
2/2	56C	0.5	6.625	5.000	6.500	21.51	12.00	31	50	20.53	11.02	15	34
2/3	56C	0.5	6.625	5.000	6.500	22.33	12.83	32	51	21.35	11.85	16	35
2/4	56C	0.75	6.625	5.000	6.500	23.20	13.70	33	54	22.22	12.72	17	38
2/5	56C	0.75	6.625	5.000	6.500	24.03	14.53	34	55	23.05	13.55	18	39
2/6	143TC	1	6.625	5.250	6.500	24.89	15.39	35	65	23.91	14.41	20	49
2/7	143TC	1	6.625	5.250	6.500	25.97	16.22	36	66	24.99	15.24	20	50
2/8	143TC	1.5	6.625	5.250	6.500	26.84	17.09	37	67	25.86	16.11	21	51
2/9	143TC	1.5	6.625	5.250	6.500	27.66	17.91	38	68	26.68	16.93	22	52
2/10	143TC	1.5	6.625	5.250	6.500	29.40	18.78	39	69	28.42	17.80	23	53
2/11	145TC	2	6.625	5.250	6.500	30.23	19.61	41	73	29.25	18.63	24	57
2/12	145TC	2	6.625	5.250	6.500	31.10	20.47	42	74	30.12	19.49	25	58
2/14	145TC	2	6.625	5.250	6.500	33.56	23.03	43	76	33.18	22.05	27	60
2/16	182TC	3	7.875	5.875	9.000	35.85	24.72	45	95	34.87	23.74	29	79
2/18	182TC	3	7.875	5.875	9.000	37.54	26.42	47	97	36.56	25.44	31	81
2/20	182TC	3	7.875	5.875	9.000	39.24	28.11	52	102	38.26	27.13	36	86
2/22	184TC	5	7.875	5.875	9.000	43.68	29.80	54	123	42.70	28.82	38	107

* Motor dimensions and weights are based on typical NEMA motors, not supplied by DP Pumps

3.3 Hydraulic performance curve DPV 4 B - 60Hz - 2 pole

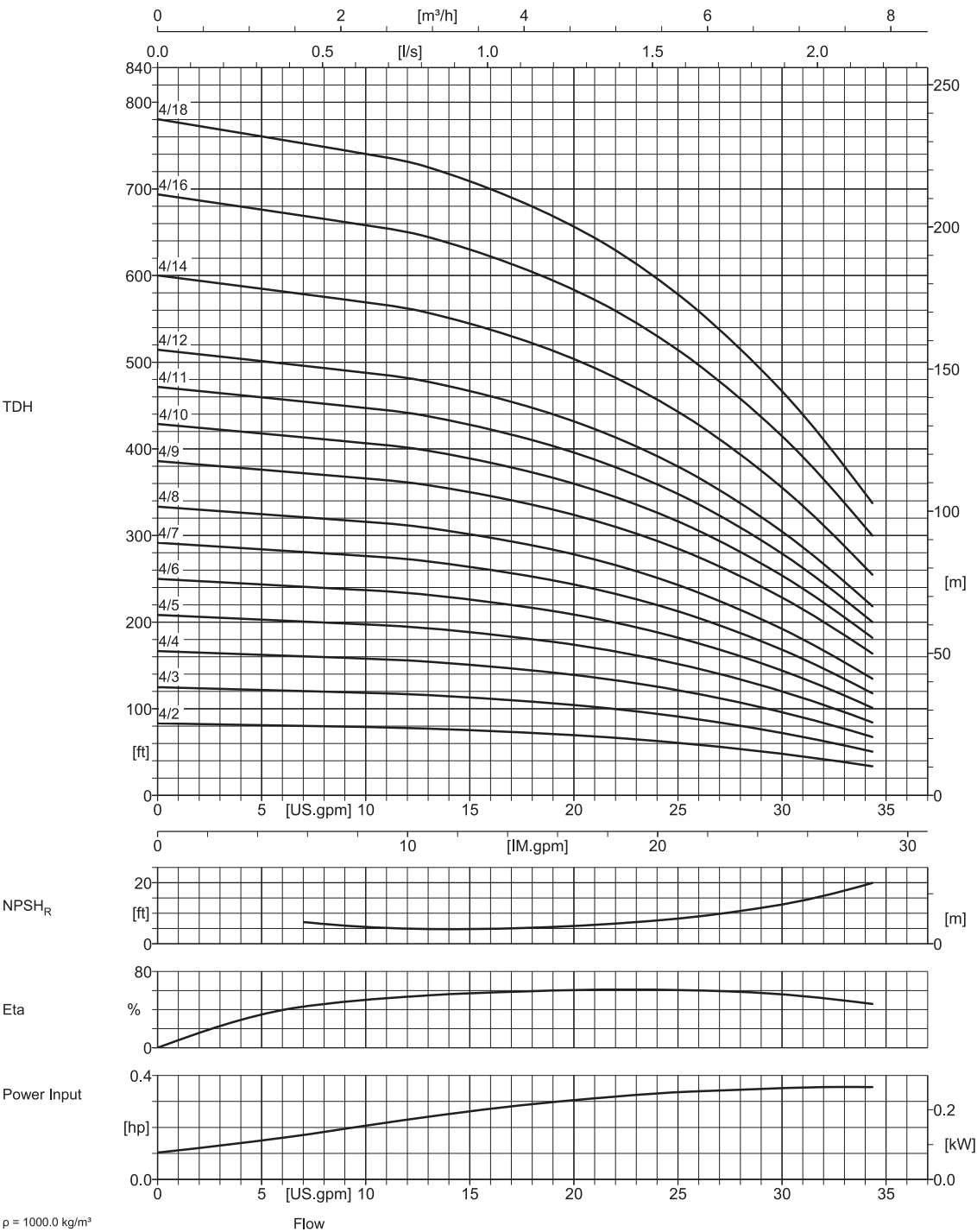


Figure 6: Performance curve DPV 4 B - 60Hz - 2 pole

20090372.C

3.4 Dimensions DPV 4 B

Table 11: Layout and connections

		Standard DPV(C/S)F Collar flange in cast iron Norm: ASME B16.1 Size: 1.25" (NPS 5/4) Pressure Class: Class250 Option: base plate in AISI304
		Optional DPV(S)F Collar flanges in AISI304 Norm: ASME B16.5 Size: 1.25" (NPS 5/4) Pressure Class: Class300 Option: base plate in AISI304
		Optional DPV(S) Counter flange with female thread in cast stainless steel Norm: ASME B1.20.1 Size: NPT 1" Pressure Class: Class150 Option: base plate in AISI304

Table 12: Dimensions and weights

Model	Frame size	Power req. [hp]	Motor dimensions*			DPV(C/S)F		Bare shaft mass [lbs]	Mass with motor*	DPV(S)		Bare shaft mass [lbs]	Mass with motor*
			E1 [inch]	E2 [inch]	P [inch]	F1 [inch]	F2 [inch]			F1 [inch]	F2 [inch]		
4/2	56C	0.75	6.625	5.000	6.500	21.51	12.00	31	52	20.53	11.03	15	36
4/3	143TC	1	6.625	5.250	6.500	22.59	12.83	33	63	21.60	11.85	17	47
4/4	143TC	1.5	6.625	5.250	6.500	23.45	13.70	33	63	22.47	12.72	17	47
4/5	143TC	1.5	6.625	5.250	6.500	24.28	14.53	34	64	23.30	13.55	18	48
4/6	145TC	2	6.625	5.250	6.500	26.02	15.39	35	68	25.04	14.41	20	52
4/7	145TC	2	6.625	5.250	6.500	27.72	17.09	36	69	26.74	16.11	20	53
4/8	182TC	3	7.875	5.875	9.000	29.08	17.95	37	87	28.10	16.98	21	71
4/9	182TC	3	7.875	5.875	9.000	29.91	18.78	42	92	28.92	17.80	26	76
4/10	182TC	3	7.875	5.875	9.000	30.77	19.65	43	93	29.79	16.67	27	77
4/11	184TC	5	7.875	5.875	9.000	34.35	20.47	44	113	33.67	19.49	28	97
4/12	184TC	5	7.875	5.875	9.000	35.21	21.34	45	114	34.23	20.36	29	98
4/14	184TC	5	7.875	5.875	9.000	36.91	23.03	46	115	35.93	22.05	30	99
4/16	184TC	5	7.875	5.875	9.000	38.60	24.72	79	148	37.62	23.74	63	132
4/18	213TC	7.5	9.562	7.375	9.000	41.67	26.42	81	203	40.69	25.44	65	187

* Motor dimensions and weights are based on typical NEMA motors, not supplied by DP Pumps

3.5 **Hydraulic performance curve DPV 6 B - 60Hz - 2 pole**

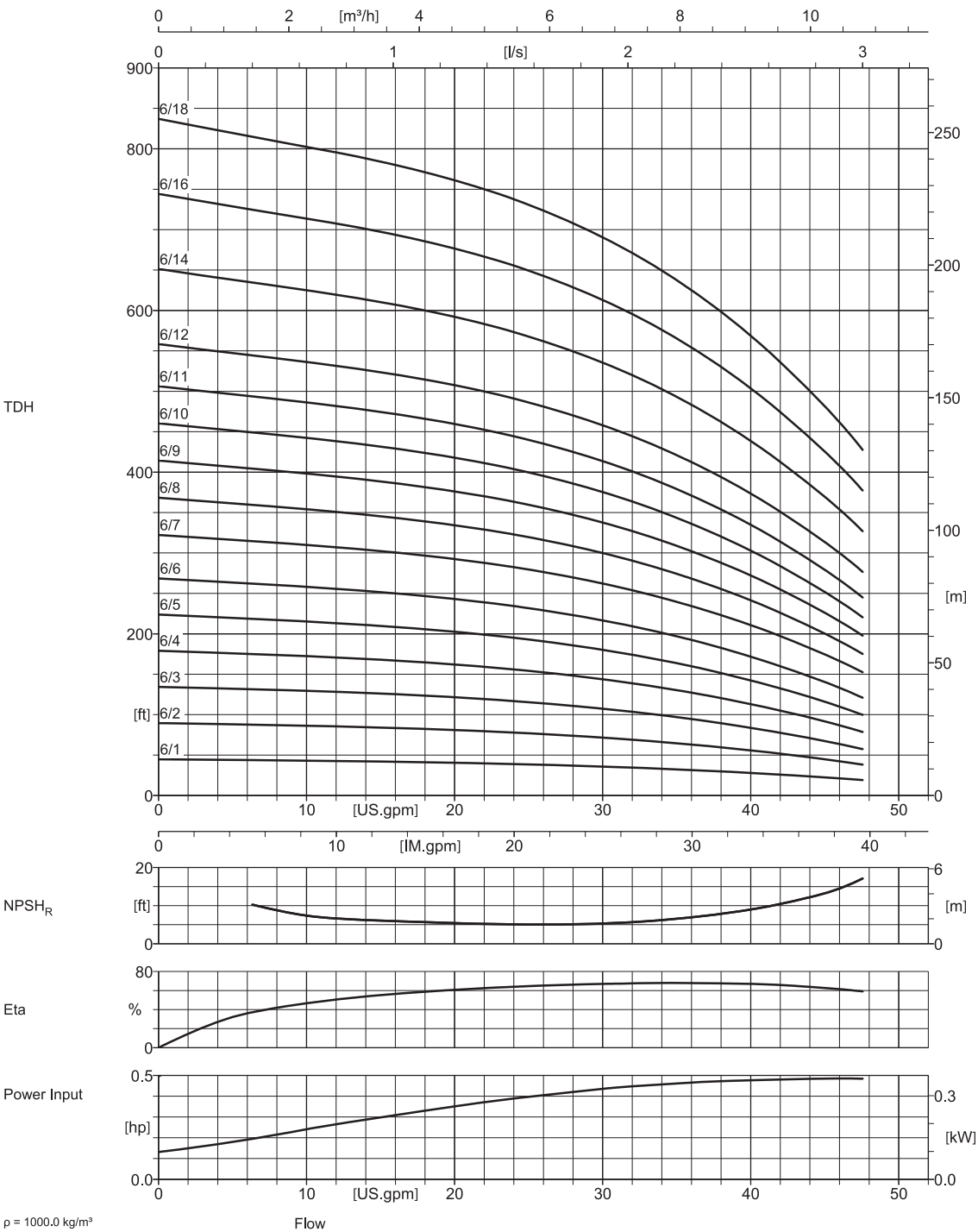


Figure 7: Performance curve DPV 6 B - 60Hz - 2 pole

20090374-C

3.6 Dimensions DPV 6 B

Table 13: Layout and connections

		Standard DPV(C/S)F Collar flanges in cast iron Norm: ASME B16.1 Size: 1.25" (NPS 5/4) Pressure Class: Class250 Option: base plate in AISI304
		Optional DPV(S)F Collar flanges in AISI304 Norm: ASME B16.5 Size: 1.25" (NPS 5/4) Pressure Class: Class300 Option: base plate in AISI304
		Optional DPV(S) Counter flange with female thread in cast stainless steel Norm: ASME B1.20.1 Size: NPT 1.25" Pressure Class: Class150 Option: base plate in AISI304

Table 14: Dimensions and weights

Model	Frame size	Power req. [hp]	Motor dimensions*			DPV(C/S)F		Bare shaft mass [lbs]	Mass with motor* [lbs]	DPV(S)		Bare shaft mass [lbs]	Mass with motor* [lbs]
			E1 [inch]	E2 [inch]	P [inch]	F1 [inch]	F2 [inch]			F1 [inch]	F2 [inch]		
6/1	56C	0.5	6.625	5.000	6.500	21.78	12.28	32	51	20.80	11.30	16	35
6/2	143TC	1	6.625	5.250	6.500	21.78	12.28	33	63	20.80	11.30	17	47
6/3	143TC	1.5	6.625	5.250	6.500	23.02	13.27	34	64	22.04	23.29	18	48
6/4	145TC	2	6.625	5.250	6.500	24.88	14.25	35	68	23.90	13.27	19	52
6/5	145TC	2	6.625	5.250	6.500	26.73	16.10	36	86	25.75	15.12	20	53
6/6	182TC	3	7.875	5.875	9.000	28.21	17.87	38	88	27.23	16.11	22	72
6/7	182TC	3	7.875	5.875	9.000	29.20	18.07	42	111	28.22	17.10	26	95
6/8	184TC	5	7.875	5.875	9.000	32.93	19.06	43	112	31.95	18.08	27	96
6/9	184TC	5	7.875	5.875	9.000	33.91	20.04	44	113	32.93	19.06	28	97
6/10	184TC	5	7.875	5.875	9.000	34.90	21.02	45	114	33.92	20.04	29	98
6/11	184TC	5	7.875	5.875	9.000	35.88	22.00	46	115	34.90	21.03	30	99
6/12	184TC	5	7.875	5.875	9.000	36.87	22.99	78	147	35.89	22.01	62	131
6/14	213TC	7.5	9.562	7.375	9.000	40.21	24.96	80	202	39.23	23.98	64	186
6/16	213TC	7.5	9.562	7.375	9.000	44.86	29.61	83	205	43.88	28.63	67	189
6/18	213TC	7.5	9.562	7.375	9.000	46.83	31.57	92	214	45.85	30.60	76	198

* Motor dimensions and weights are based on typical NEMA motors, not supplied by DP Pumps

3.7 Hydraulic performance curve DPV 10 B - 60Hz - 2 pole

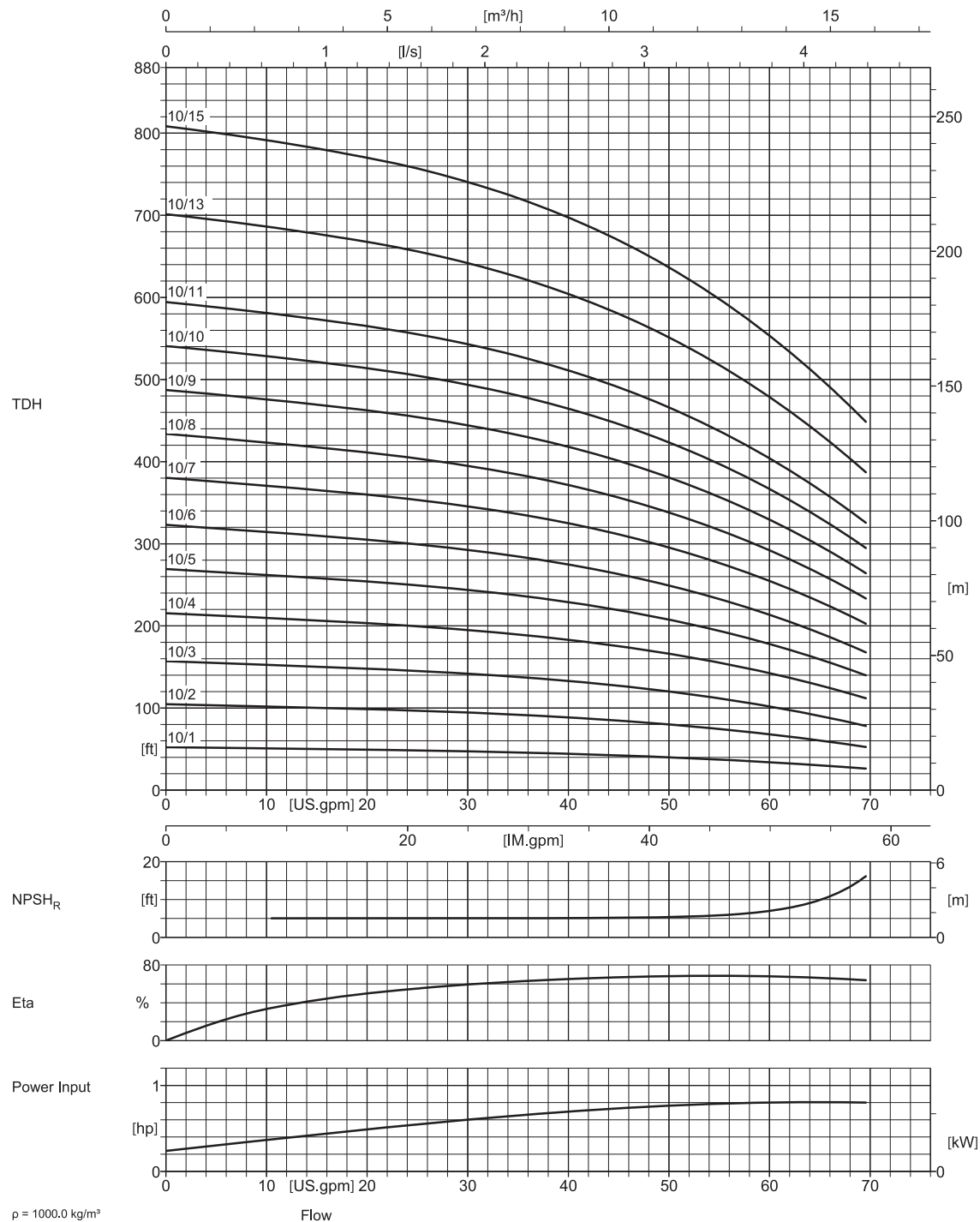


Figure 8: Performance curve DPV 10 B - 60Hz- 2 pole

20101080

3.8 Dimensions DPV 10 B

Table 15: Layout and connections

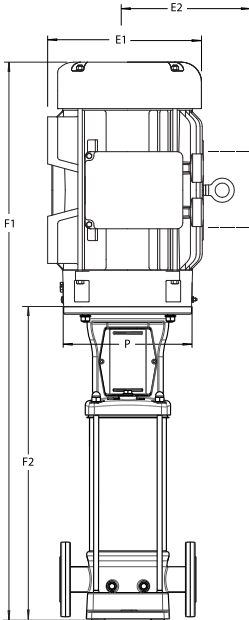
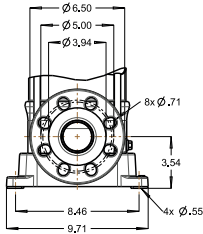
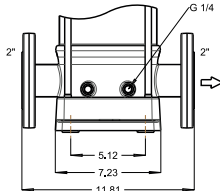
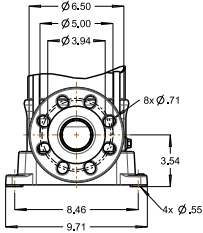
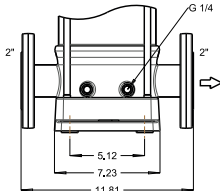
	 	Standard DPV(C/S)F Flanges in cast iron Norm: ASME B16.1 Size: 2" (NPS 2) Pressure Class: Class 250
	 	Optional DPV(S)F Collar flanges in AISI304 Norm: ASME B16.5 Size: 2" (NPS 2) Pressure Class: Class 300 Option: base plate in AISI304

Table 16: Dimensions and weights

Model	Frame size	Power req. [hp]	Motor dimensions*			DPV(C/S)F		Bare shaft mass [lbs]	Mass with motor*	DPV(S)		Bare shaft mass [lbs]	Mass with motor*
			E1 [inch]	E2 [inch]	P [inch]	F1 [inch]	F2 [inch]			F1 [inch]	F2 [inch]		
10/1	56C	0.75	6.625	5.000	6.500	23.04	13.54	56	77	23.04	13.54	41	62
10/2	143TC	1.5	6.625	5.250	6.500	24.17	13.54	57	87	24.17	13.54	42	72
10/3	182TC	3	7.875	5.875	9.000	26.58	15.45	65	115	26.58	15.45	50	100
10/4	182TC	3	7.875	5.875	9.000	30.37	16.50	67	117	30.37	16.50	52	102
10/5	184TC	5	7.875	5.875	9.000	31.41	17.54	69	138	31.41	17.54	54	123
10/6	184TC	5	7.875	5.875	9.000	32.46	18.58	71	140	32.46	18.58	56	125
10/7	213TC	7.5	9.562	7.375	9.000	34.88	19.63	102	224	34.88	19.63	87	209
10/8	213TC	7.5	9.562	7.375	9.000	35.92	20.67	107	229	35.92	20.67	92	214
10/9	213TC	7.5	9.562	7.375	9.000	37.05	21.71	110	232	37.05	21.71	95	217
10/10	213TC	7.5	9.562	7.375	9.000	40.68	25.43	116	238	40.68	25.43	101	223
10/11	215TC	10	9.562	7.375	9.000	41.73	26.48	118	240	41.73	26.48	103	225
10/13	215TC	10	9.562	7.375	9.000	43.81	28.56	148	270	43.81	28.56	133	255
10/15	254TC	15	12.937	9.625	10.000	47.15	30.65	152	373	47.15	30.65	137	358

* Motor dimensions and masses are based on typical NEMA motors, not supplied by DP Pumps

3.9 **Hydraulic performance curve DPV 15 B - 60Hz - 2 pole**

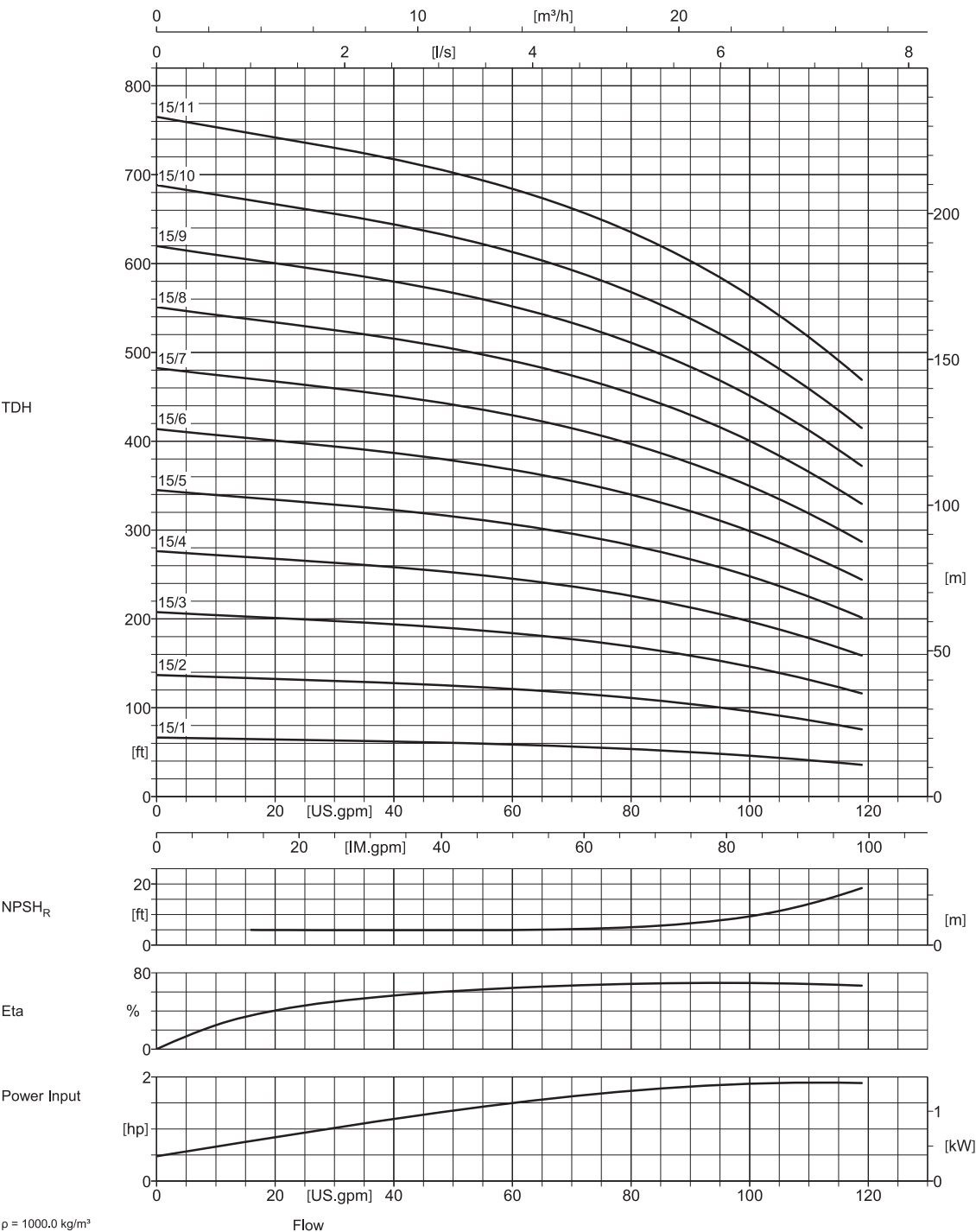


Figure 9: Performance curve DPV 15 B - 60Hz - 2 pole

20101084

3.10 Dimensions DPV 15 B

Table 17: Layout and connections

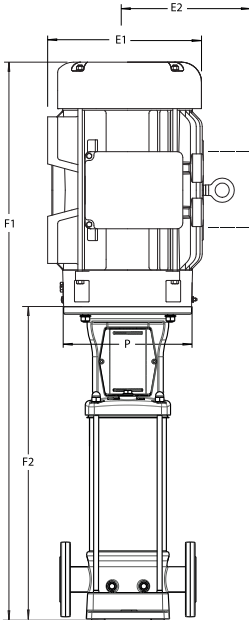
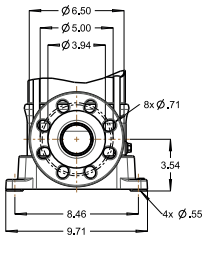
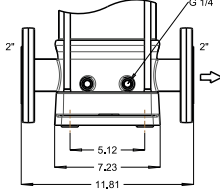
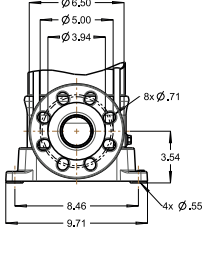
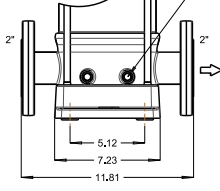
	 		Standard DPV(C/S)F Flanges in cast iron Norm: ASME B16.1 Size: 2" (NPS 2) Pressure Class: Class 250
	 		Optional DPV(S)F Collar flanges in AISI304 Norm: ASME B16.5 Size: 2" (NPS 2) Pressure Class: Class 300 Option: base plate in AISI304

Table 18: Dimensions and weights

Model	Frame size	Power req.	Motor dimensions*			DPV(C/S)F		Bare shaft mass	Mass with motor*	DPV(S)		Bare shaft mass	Mass with motor*
			E1 [inch]	E2 [inch]	P [inch]	F1 [inch]	F2 [inch]			F1 [inch]	F2 [inch]		
15/1	145TC	2	6.625	5.250	6.500	24.58	13.94	60	90	24.17	13.54	43	73
15/2	184TC	5	7.875	5.875	9.000	28.68	14.80	67	136	28.29	14.41	49	118
15/3	213TC	7.5	9.562	7.375	9.000	31.10	15.85	98	220	30.70	15.45	81	203
15/4	213TC	7.5	9.562	7.375	9.000	34.82	19.57	104	226	34.42	19.17	86	208
15/5	215TC	10	9.562	7.375	9.000	35.86	20.61	106	228	35.47	20.22	89	211
15/6	215TC	10	9.562	7.375	9.000	36.90	21.65	130	252	36.51	21.26	113	235
15/7	254TC	15	12.937	9.625	10.000	39.20	22.70	132	353	38.80	22.30	115	336
15/8	254TC	15	12.937	9.625	10.000	40.87	24.37	138	359	40.48	23.98	120	341
15/9	254TC	15	12.937	9.625	10.000	41.91	25.41	141	362	41.52	25.02	124	345
15/10	256TC	20	12.937	9.625	10.000	42.96	26.46	143	364	42.56	26.06	126	347
15/11	256TC	20	12.937	9.625	10.000	44.00	27.50	156	376	43.61	27.11	138	359

* Motor dimensions and masses are based on typical NEMA motors, not supplied by DP Pumps

3.11 Hydraulic performance curve DPV 25 B - 60Hz - 2 pole

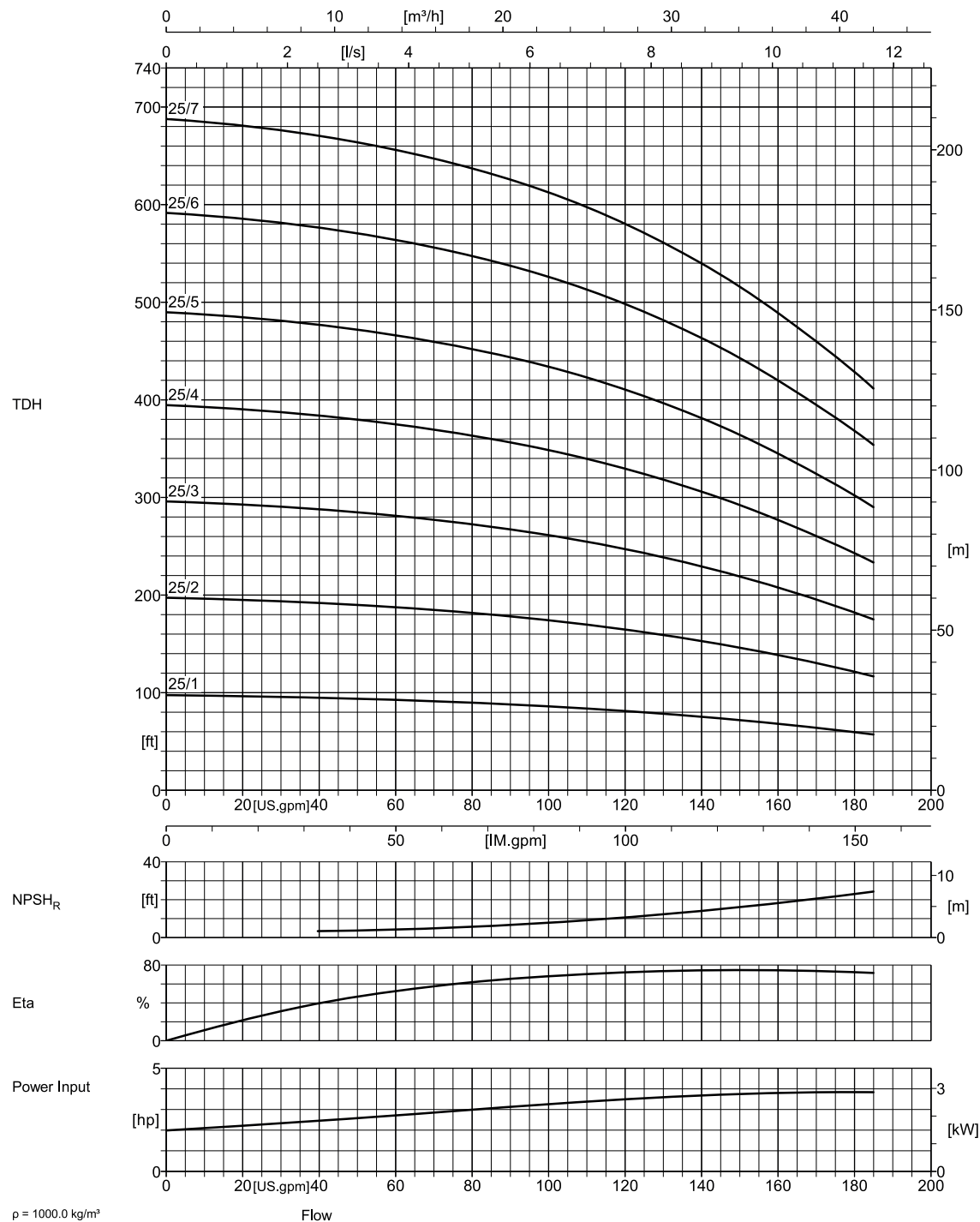


Figure 10: Performance curve DPV 25 B - 60Hz - 2 pole

20090371-C

3.12 Dimensions DPV 25 B

Table 19: Layout and connections

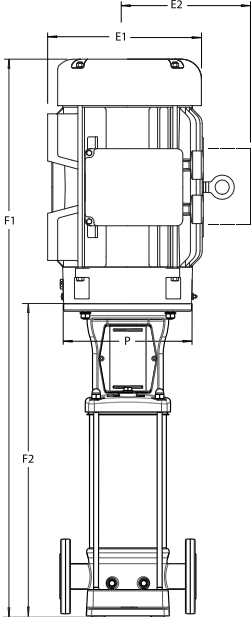
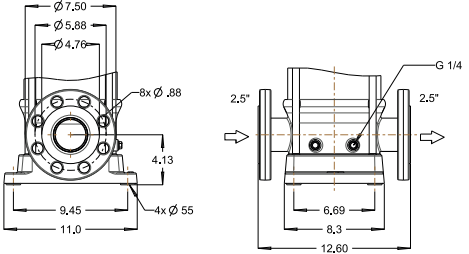
		Standard DPV(S)F Norm: ASME B16.1 Size: 2.5" (NPS 2.5) Pressure Class: Class250
---	---	--

Table 20: Dimensions and weights

Model	Frame size	Power req.	Motor dimensions*			DPV(S)F		Bare shaft mass	Mass with motor*
		[hp]	E1 [inch]	E2 [inch]	P [inch]	F1 [inch]	F2 [inch]	[lbs]	[lbs]
25/1	184TC	5	7.875	5.875	9.000	30.81	16.93	110	179
25/2	213TC	7.5	9.562	7.375	9.000	37.89	22.64	125	247
25/3	215TC	10	9.562	7.375	9.000	41.70	25.20	152	274
25/4	254TC	15	12.937	9.625	10.000	44.89	28.39	166	387
25/5	256TC	20	12.937	9.625	10.000	47.44	30.94	178	399
25/6	256TC	20	12.937	9.625	10.000	49.26	32.76	181	402
25/7	284TSC	25	14.625	13.125	11.250	53.10	35.31	209	580

* Motor dimensions and masses are based on typical NEMA motors, not supplied by DP Pumps

3.13 Hydraulic performance curve DPV 40 B - 60Hz - 2 pole

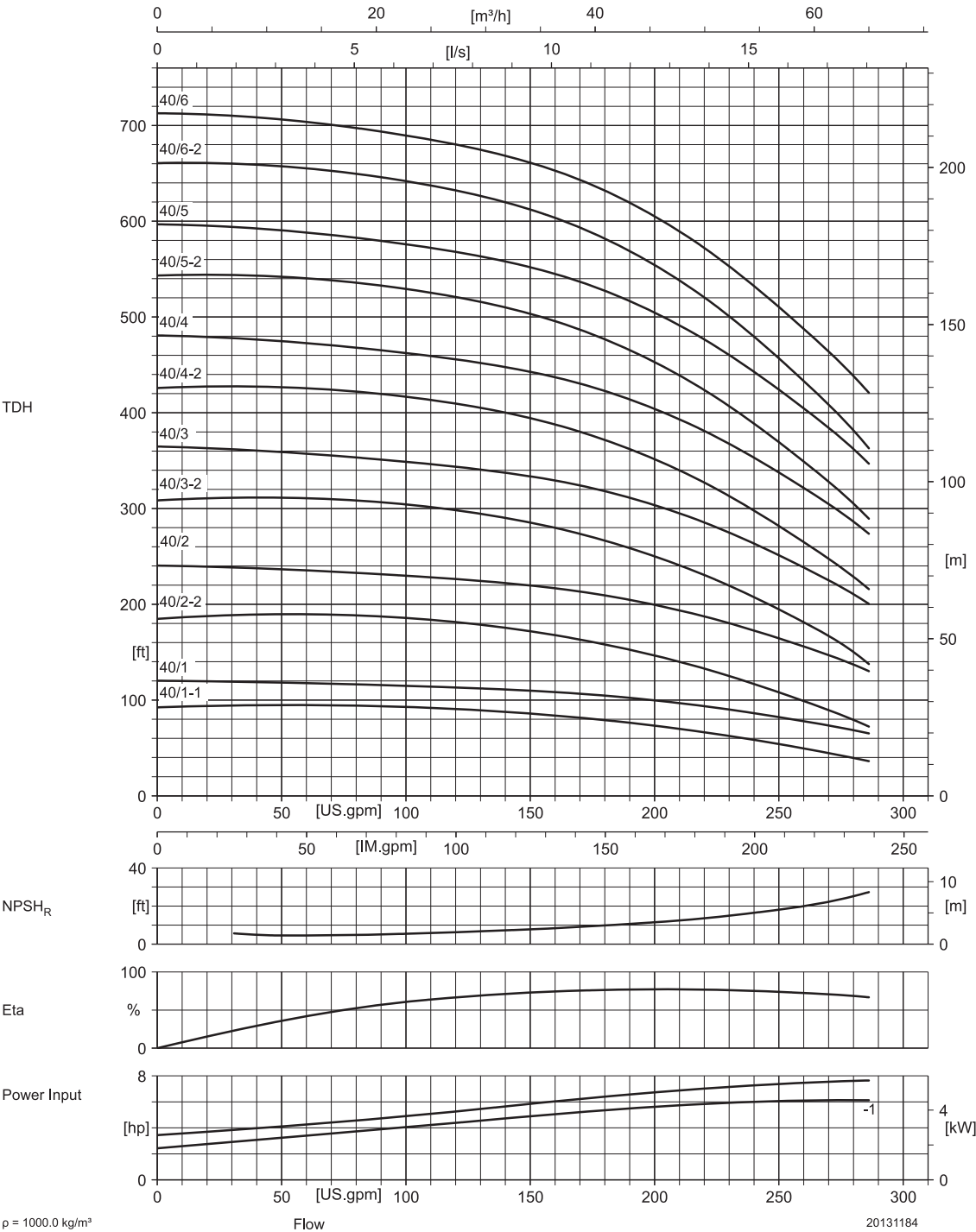


Figure 11: Performance curve DPV 40 B - 60Hz - 2 pole

20090373-D

3.14 Dimensions DPV 40 B

Table 21: Layout and connections

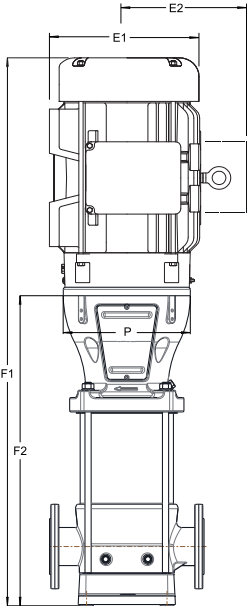
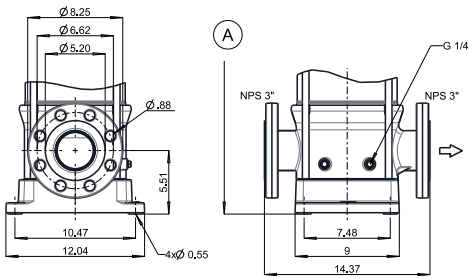
		Standard DPV(S)F Norm: ASME B16.1 Size: 3" (NPS 3) Pressure Class: Class250
---	---	--

Table 22: Dimensions and weights

Model	Frame size	Power req. [hp]	Motor dimensions*			DPV(S)F		Bare shaft mass [lbs]	Mass with motor*
			E1 [inch]	E2 [inch]	P [inch]	F1 [inch]	F2 [inch]		
40/1-1	184TC	5	7.875	5.875	9.000	33.72	19.84	160	229
40/1	213TC	7.5	9.562	7.375	9.000	38.24	22.99	174	296
40/2-2	254TC	15	12.937	9.625	10.000	43.19	26.69	209	430
40/2	254TC	15	12.937	9.625	10.000	43.19	26.69	209	430
40/3-2	256TC	20	12.937	9.625	10.000	46.26	29.76	216	437
40/3	284TSC	25	14.625	13.125	11.250	47.98	28.98	217	588
40/4-2	284TSC	25	14.625	13.125	11.250	51.05	32.05	224	595
40/4	286TSC	30	16.500	14.125	11.250	51.05	32.05	259	662
40/5-2	324TSC	40	16.500	14.125	13.375	60.60	35.47	279	765
40/5	324TSC	40	16.500	14.125	13.375	60.6	35.47	279	765
40/6-2	324TSC	40	16.500	14.125	13.375	63.67	38.54	299	785
40/6	326TSC	50	16.500	14.125	13.375	63.67	38.54	299	894
40/7-2	326TSC	50	16.500	14.125	13.375	66.74	41.61	308	903
40/7	326TSC	50	16.500	14.125	13.375	66.74	41.61	350	945

* Motor dimensions and masses are based on typical NEMA motors, not supplied by DP Pumps

3.15 Hydraulic performance curve DPV 60 B - 60Hz - 2 pole

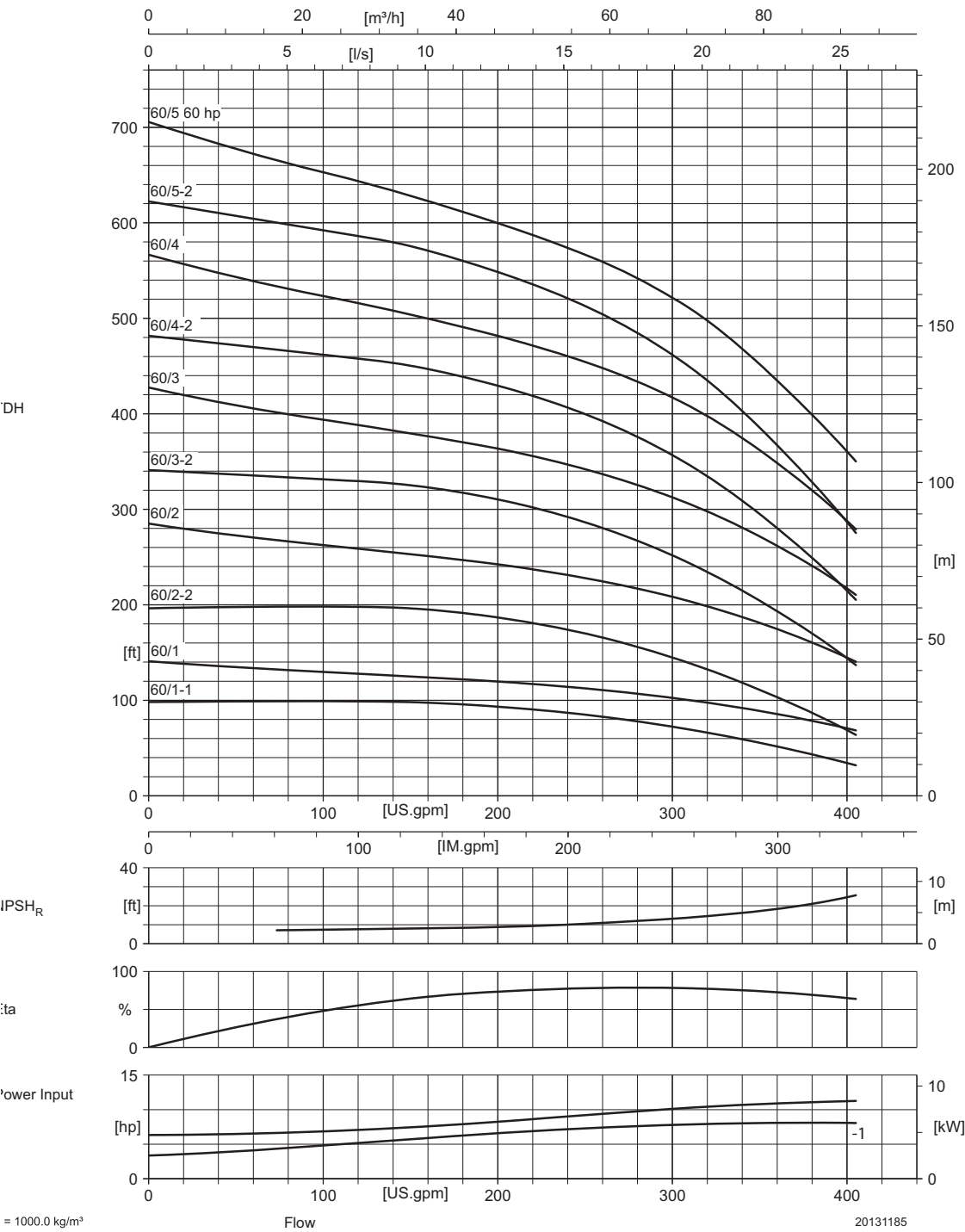


Figure 12: Performance curve DPV 60 B - 60Hz - 2 pole

3.16 Dimensions DPV 60 B

Table 23: Layout and connections

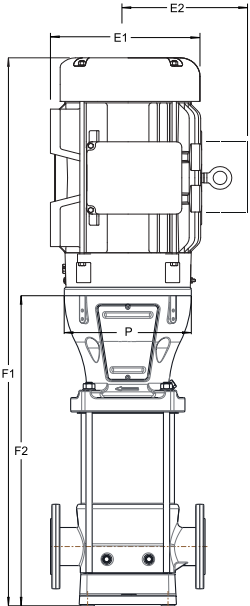
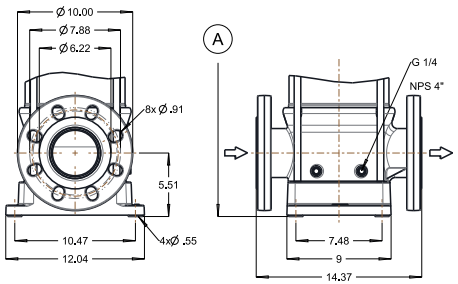
		Standard DPV(S)F Norm: ASME B16.1 Size: 4" (NPS 4) Pressure Class: Class250
---	---	---

Table 24: Dimensions and weights

Model	Frame size	Power req. [hp]	Motor dimensions*			DPV(S)F		Bare shaft mass [lbs]	Mass with motor*
			E1 [inch]	E2 [inch]	P [inch]	F1 [inch]	F2 [inch]		
60/1-1	213TC	7.5	9.562	7.375	9.000	38.24	22.99	187	309
60/1	254TC	15	12.937	9.625	10.000	40.12	23.62	214	435
60/2-2	254TC	15	12.937	9.625	10.000	43.19	26.69	221	442
60/2	284TSC	25	14.625	13.125	11.250	44.19	25.91	215	586
60/3-2	284TSC	25	14.625	13.125	11.250	47.98	28.98	229	600
60/3	324TSC	40	16.500	14.125	13.375	54.46	29.33	269	755
60/4-2	324TSC	40	16.500	14.125	13.375	57.53	32.40	276	762
60/4	326TSC	50	16.500	14.125	13.375	57.53	32.40	276	871
60/5-2	326TSC	50	16.500	14.125	13.375	60.60	35.47	302	897
60/5	364TSC	60	18.250	15.062	13.375	62.44	35.47	302	1071

* Motor dimensions and masses are based on typical NEMA motors, not supplied by DP Pumps

3.17 Hydraulic performance curve DPV 85 B - 60Hz - 2 pole

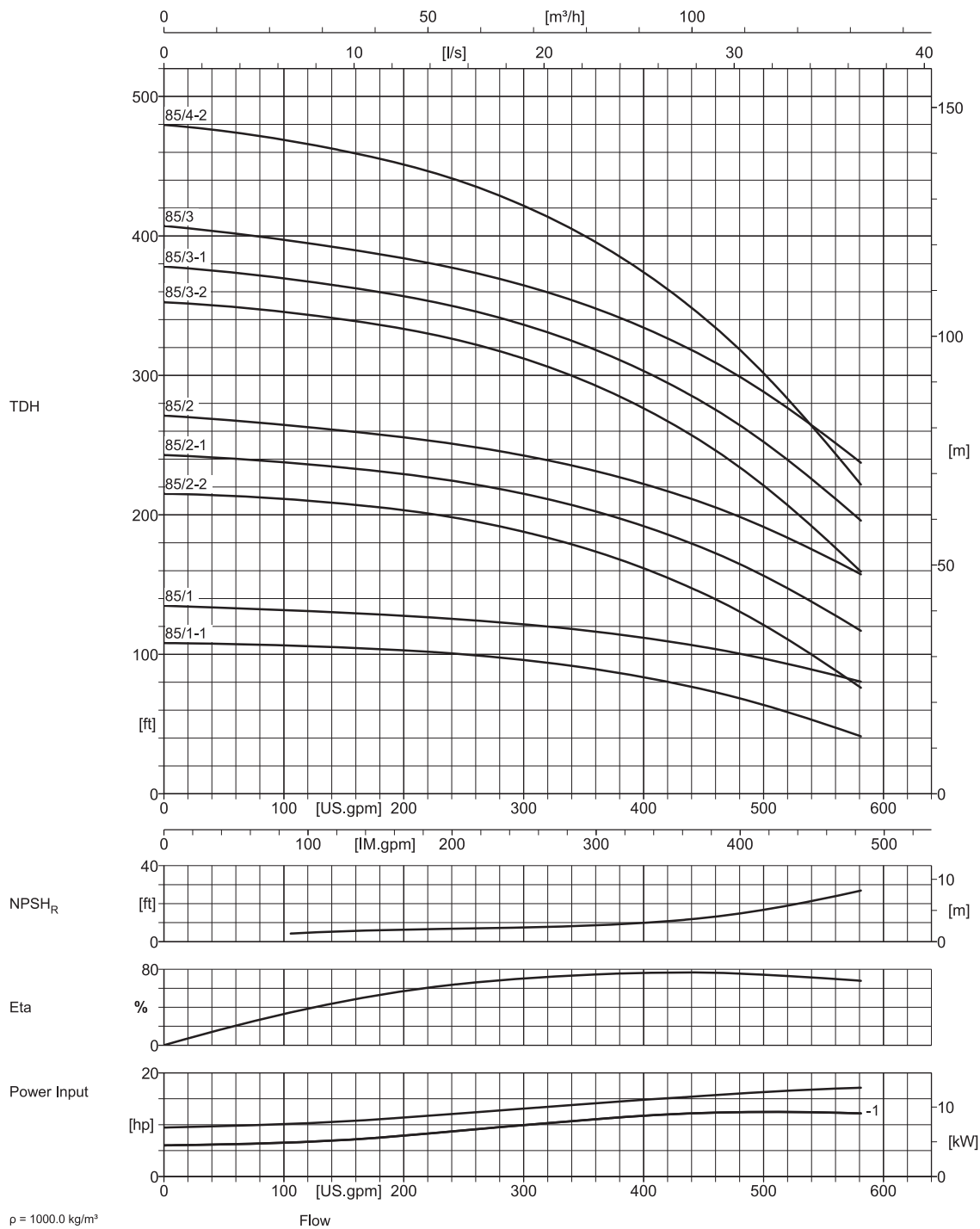


Figure 13: Performance curve DPV 85 B - 60Hz - 2 Pole

20101081

3.18 Dimensions DPV 85 B

Table 25: Layout and connections

		Standard max pressure Class125 DPV(C/S)F Flanges in cast iron Norm: ASME B16.1 Size: 4" (NPS 4) Pressure Class: Class125
		Optional DPVSF Flanges in AISI304 Norm: ASME B16.5 Size: 4" (NPS 4) Pressure Class: Class150 Option: base plate in AISI304
		Standard max pressure Class250 DPV(C/S)F Flanges in cast iron Norm: ASME B16.1 Size: 4" (NPS 4) Pressure Class: Class250
		Optional DPVSF Flanges in AISI304 Norm: ASME B16.5 Size: 4" (NPS 4) Pressure Class: Class300 Option: base plate in AISI304

Table 26: Dimensions and weights

Model	Frame size	Power req. [hp]	Motor dimensions*			DPV(S)F		Bare shaft mass [lbs]	Mass with motor* [lbs]
			E1 [inch]	E2 [inch]	P [inch]	F1 [inch]	F2 [inch]		
85/1-1	254TC	15	12.937	9.625	10.000	42.00	25.00	229	450
85/1	254TC	15	12.937	9.625	10.000	42.63	26.13	234	455
85/2-2	284TSC	25	14.625	13.125	11.250	48.67	29.67	263	634
85/2-1	284TSC	25	14.625	13.125	11.250	48.67	29.67	264	635
85/2	286TSC	30	16.500	14.125	11.250	49.05	29.95	303	789
85/3-2	324TSC	40	16.500	14.125	13.375	53.36	34.24	325	811
85/3-1	324TSC	40	16.500	14.125	13.375	59.36	34.24	326	812
85/3	326TSC	50	16.500	14.125	13.375	59.36	34.24	378	973
85/4-2	326TSC	50	16.500	14.125	13.375	63.56	38.53	399	994

* Motor dimensions and masses are based on typical NEMA motors, not supplied by DP Pumps

3.19 Hydraulic performance curve DPV 125 B - 60Hz - 2 pole

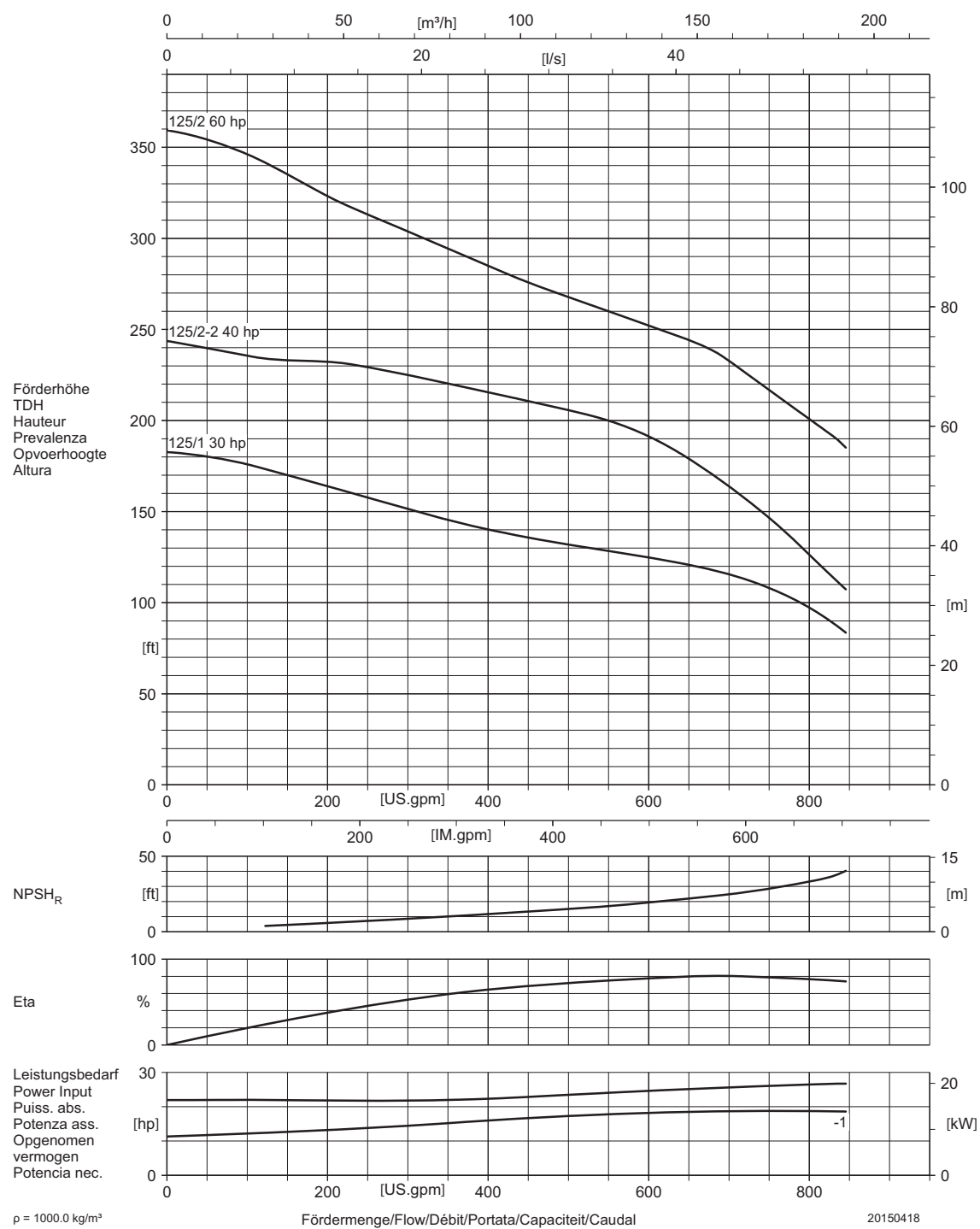


Figure 14: Performance curve DPV 125 B - 60Hz - 2 Pole

20150418

3.20 Dimensions DPV 125 B

Table 27: Layout and connections

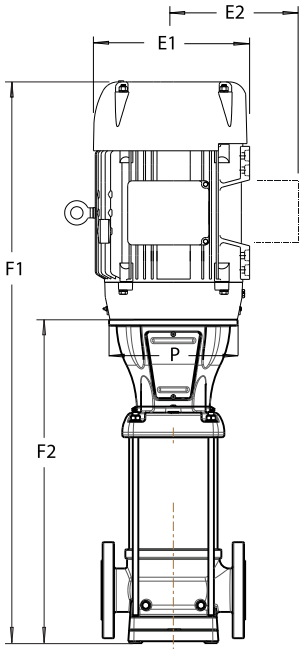
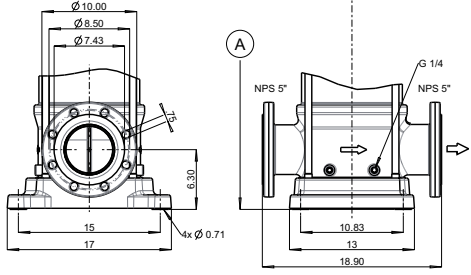
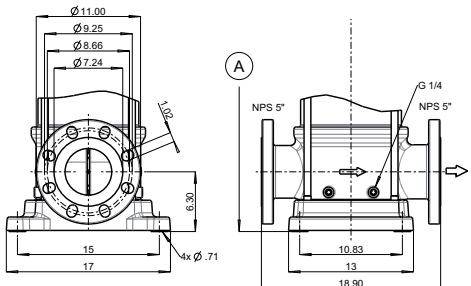
		Standard max. pressure Class 125/150 DPV (C/S) F Collar flanges in cast iron Norm: ASME B16.1 Size: 5" (NPS 5) Pressure Class: Class 125/150
		Standard max. pressure Class 250/300 DPVCF Flanges in cast iron Norm: ASME B16.1 Size: 5" (NPS 5) Pressure Class: Class 250/300

Table 28: Dimensions and weights

Model	Frame size	Power req. [hp]	Motor dimensions*			DPV(C/S)F		Bare shaft mass		Mass with motor*	
			E1 [inch]	E2 [inch]	P [inch]	F1 [inch]	F2 [inch]	DPVCF [lbs]	DPV(S)F [lbs]	DPVCF [lbs]	DPV(S)F [lbs]
125/1	286TSC	30	16.500	14.125	11.250	48.2	29.1	355	399	841	885
125/2-2	324TSC	40	16.500	14.125	13.375	59.34	34.21	386	430	872	916
125/2	364TSC	60	18.250	15.062	13.375	61.18	34.1	397	441	1166	1210

* Motor dimensions and masses are based on typical NEMA motors, not supplied by DP Pumps

3.21 Hydraulic performance curve DPLHS 6 - 60Hz - 2 pole

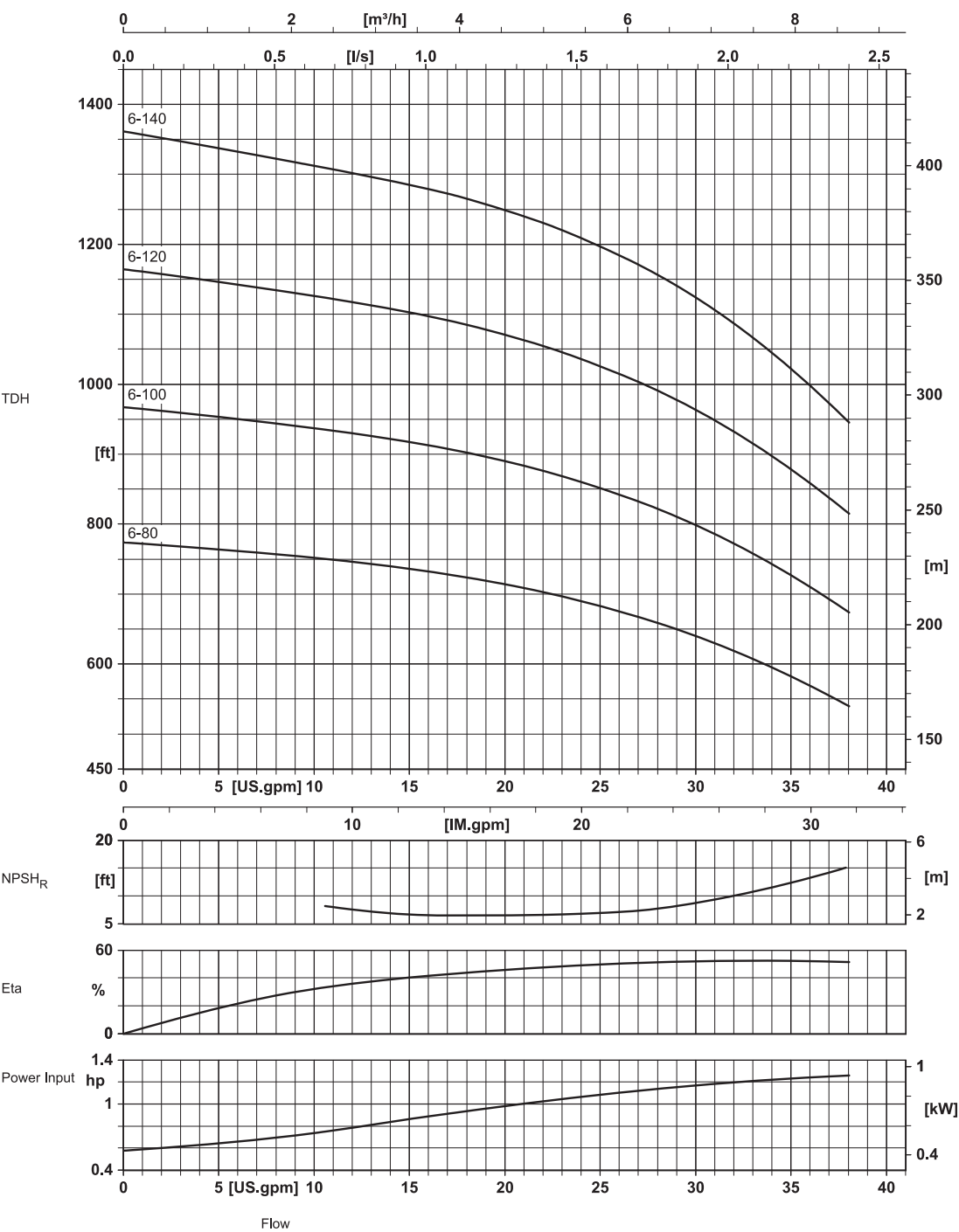


Figure 15: Performance curve DPLHS 6 - 60Hz - 2 pole

20101085

3.22 Dimensions DPLHS 6

Table 29: Layout and connections

		DPV(S)F Norm: ASME B16.1 Size: 4" (NPS 4) Pressure Class: Class600 Option: for DPV(S)F, loose plate flange and/or base plate in AISI304
--	--	---

Table 30: Dimensions and weights

Model	Frame size	Power req. [hp]	Motor dimensions*			DPV(S)F		Bare shaft mass [lbs]	Mass with motor* [lbs]
			E1 [inch]	E2 [inch]	P [inch]	F1 [inch]	F2 [inch]		
6-80	10	215TC	9.562	7.375	9.000	36.75	21.50	109	231
6-100	15	254TC	12.937	9.625	10.000	39.18	22.68	122	343
6-120	15	254TC	12.937	9.625	10.000	40.36	23.86	135	356
6-140	20	256TC	12.937	9.625	10.000	42.17	25.67	153	373

* Motor dimensions and masses are based on typical NEMA motors, not supplied by DP Pumps

4 Seals

4.1 Mechanical seal option specifications

Table 31: Seal code

Shaft seal Type	Material mechanical seal	Seal code	Material shaft seal	Material pump elastomer	Temperature range shaft seal [°F]	Max. pressure [psi]	Fixed	Easy Access	Cartridge
RMG-G606	Q1 B E GG	13	SiC / Ca / EPDM	EPDM WRAS / ACS	-4 - 212	360	●	●	●
RMG-G606	Q1 B V GG	14	SiC / Ca / FPM	FPM	-4 - 248	360	●	●	●
RMG-G606	U3 U3 X4 GG	15	TuC / TuC / HNBR	HNBR	-4 - 248 (284)	360 (232)	●	●	●
RMG-G606	U3 U3 V GG	16	TuC / TuC / FPM	FPM	-4 - 248 (284)	360 (232)	●	●	●
RMG-G606	U3 B E GG	18	TuC / Ca / EPDM	EPDM 559236	-4 - 248 (284)	360 (232)	●	●	●
H7N	Q1 A E GG	20	SiC / Ca / EPDM	EPDM 559236	-4 - 248 (284)	580 (360)			●
H7N	Q1 A V GG	21	SiC / Ca / FPM	FPM	-4 - 248 (284)	580 (360)			●
H7N	Q1 A X4 GG	22	SiC / Ca / HNBR	HNBR	-4 - 248 (284)	580 (360)			●
RMG-G606	Q1 B E GG	23	SiC / Ca / EPDM	EPDM	-4 - 212	360	●	●	●
RMG-G606	Q1 B E GG	33	SiC / Ca / EPDM	EPDM NSF	-4 - 212	360	●	●	●
RMG-G6	eCa eSiC E GG	35	eCa / eSiC / EPDM	EPDM WRAS / ACS	-4 - 248	360			●
MG-G6	eCa eSiC V GG	36	eCa / eSiC / FPM	FPM	-4 - 248	360			●
RMG-G606	U3 A V GG	37	TuC / Ca / FPM	FPM	-4 - 248 (284)	360 (232)			●



ATTENTION

Seal dimensions according to EN24960

4.1.1 Seal material description

Seal part		Code	Description
Face material	synthetic carbon	A	Carbon graphite antimony impregnated
		B	Carbon graphite resin impregnated
	carbides	Q1	SiC, silicon carbide, sintered
		U3	Tungsten carbide, NiCrMo-binder
Elastomer		E	Ethylene propylene rubber (EPDM)
		V	Fluorcarbon rubber (FPM)
		X4	Hydrogenated Nitrile-rubber (HNBR)
Spring material		G	CrNiMo steel (1.4571)
Construction material		G	CrNiMo steel (1.4571)

5 Motors

5.1 General

For the NEMA flanged bare shaft pumps specific C-faced NEMA motors can be mounted. For these motors the following technical specification regarding the bearings needs to be considered.

Fixed driven-end re-enforced bearing according the following table

Rated power	Frame size	DE bearing	NDE bearing
0.5	56C	6203 2Z-C3	supplier standard
0.75	56C	6203 2Z-C3	supplier standard
1	143TC	6204 2Z-C3	supplier standard
1.5	143TC	6204 2Z-C3	supplier standard
2	145TC	6305 2Z-C3	supplier standard
3	182TC	6305 2Z-C3	supplier standard
5	184TC	6306 2Z-C3	supplier standard
7.5	213TC	7309	supplier standard
10	215TC	7309	supplier standard
15	254TC	7309	supplier standard
20	256TC	7311	supplier standard
25	284TSC	7311	supplier standard
30	286TSC	7312	supplier standard
40	324TSC	7312	supplier standard
50	326TSC	7313	supplier standard
60	364TSC	6312	supplier standard

6 Materials

6.1 Parts overview

6.1.1 Part list

part description	ASTM/ANSI code	material code	Wetted part	VC	V	VS
Pump casing	ASTM Class 35	JL1040	X	●		
	AISI 304	1.4308	X		●	
	AISI 316	1.4408	X			●
(Loose plate) flange	ASTM Class 25	JL1030			●	●
	AISI 304	1.4308			○	○
Pump shroud	AISI 304	1.4301	X	●	●	
	AISI 316L	1.4404	X			●
Stage Casing	AISI 304	1.4301	X	●	●	
	AISI 316L	1.4404	X			●
Cover	AISI 304	1.4301	X		●	
	AISI 316L	1.4404	X			●
Shaft	AISI 431	1.4057	X	●	●	
	AISI 329	1.4460	X			●
Impeller	AISI 304	1.4301	X	●	●	
	AISI 316L	1.4404	X			●
Motor stool	ASTM Class 35	JL1040		●	●	●
Pump sealing elastomers	EPDM		X	●	●	○
	EPDM WRAS/ACS		X	○	○	○
	FPM		X	○	○	●
	EPDM 559236		X	○	○	○
	HNBR		X	○	○	○
	PEEK450CA30 - DPV125		X	●	●	●
Seal cover	AISI 304	1.4308	X	●	●	○
	AISI 316	1.4408	X	○	○	●
Spacer sleeve	AISI 304	1.4301	X	●	●	
	AISI 316	1.4404	X			●
Bearing sleeve	Tungsten Carbide		X	●	●	●
Bearing	Aluminium Oxide		X	●	●	●
Taper piece	ASTM Class 35	JL1040		●	●	●
Coupling from 7.5hp	ASTM Class 25	JS1030		●	●	●
Coupling up to 5hp	Aluminium			●	●	●
Base plate	ASTM Class 35	JS1040		●	●	●
Base plate	AISI 304	1.4308			○	○
Screwed plugs (vent) and drain	AISI 304	1.4301 (A2)	X	●	●	
	AISI 316	1.4404 (A4)	X			●
Tie bolt	AISI 431	1.4057		●	●	●
Lock nut	AISI 304	1.4301	X	●	●	

part description	ASTM/ANSI code	material code	Wetted part	VC	V	VS
	AISI 316	1.4404	X			●
Safety device Nord-lock	AISI 316L	1.4404	X	●	●	●
Circlip	AISI 316Ti	1.4571	X	●	●	●
Wave spring DPV(C/S) 2-15 B	AISI 304	1.4300	X	●	●	○
	AISI 316	1.4401	X	○	○	●

● Standard ○ Option

6.1.2 Materials conversion

Material	ASTM / AISI ¹	Description	Code and material nr.	Standard
JL 1040	A48:40B	Cast iron	GJL-250	EN 1561
JS1030		Cast iron	GJS-400	EN 1563
1.4057	A276:431	Chromium-nickel steel	X17CrNi16-2--QT800	EN 10088-3
14300	A276:302	Chromium-nickel steel	X12CrNi 18-8	EN 10088
1.4301	A276:304	Chromium-nickel steel	X5CrNi 18-10	EN 10088
1.4305	A276:303	Chromium-nickel steel	X8CrNiS 18-9	EN 10088
1.4308	A743:CF8	Chromium-nickel cast steel	GX5CrNi 19-10	EN 10283
1.4401	A276:316	Chromium-nickel-molybdenum steel	X5CrNiMo 17-12-2	EN 10088
1.4404	A276:316L	Chromium-nickel-molybdenum steel	X2CrNiMo 17-12-2	EN 10088
1.4408	A743CF8M	Chromium-nickel-molybdenum cast steel	GX5CrNiMo 19-11-2	EN 10213
1.4460	--:329	Chromium-nickel-molybdenum steel	X3CrNiMoN 27 5 2	EN 10088
1.4571	A276:316Ti	Chromium-nickel-molybdenum steel	X6CrNiMoTi 17-12-2	EN 10088

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

7 Medium handled

7.1 Medium handled

Media description	Media group	Chemical formula	Cons. max. [%]	PH max.	Temp max. [°F]	Model	Material shaft seal			Material pump
							rotor	stator	elas-tomer	
Acetic acid	Acid	(CH_3COOH)	5		68	V	SiC	Ca	EPDM	EPDM
Acetic anhydride	Weak acid derivative	$(CH_3CO)_2O$	20		68	V	SiC	Ca	EPDM	EPDM
Acetone	Ketone	$(CH_3)_2CO$				VC	SiC	Ca	EPDM	EPDM
Acetyl chloride		CH_3COCl			104	VS	SiC	Ca	EPDM	EPDM
Alcaline (bottle rinse)	Rinsing		2	< 9.5	104	V	TuC	TuC	HNBR	HNBR
Alcohol (Ethanol)	Hydrocarbon	C_2H_5OH	100		140	V	SiC	Ca	EPDM	EPDM
Alum (potassium aluminium sulphate)	Salt	$MI\ III\ (SO_4)_2$	3		176	VS	SiC	Ca	FPM	FPM
Aluminium chloride	Halide	$AlCl_3$	5		122	VS	SiC	Ca	EPDM	EPDM
Aluminium chloride	Halide	$AlCl_3$	25		68	VS	SiC	Ca	EPDM	EPDM
Aluminium sulphate	Salt	$Al_2(SO_4)_3$			68	V	SiC	Ca	EPDM	EPDM
Aluminium sulphate	Salt	$Al_2(SO_4)_3$	5		Boiling	VS	SiC	Ca	EPDM	EPDM
Ammonia	Strong base	NH_3				VC	SiC	Ca	EPDM	EPDM
Ammonium bicarbonate	Salt	$(NH_4)HCO_3$	10		104	V	SiC	Ca	EPDM	EPDM
Ammonium sulphate	Salt	$(NH_4)_2SO_4$	20		176	V	SiC	Ca	EPDM	EPDM
Antifreeze (glycol base, salt-free)	Alcohol		45		230	V	SiC	Ca	EPDM	EPDM
Beer (not lathery / under pressure)	Alcohol		100		59	V	SiC	Ca	EPDM	EPDM
Benzene	Hydrocarbon solvent	C_6H_6				VS	SiC	Ca	FPM	FPM
Boric acid	Acid	H_3BO_3				V	SiC	Ca	EPDM	EPDM
Buttermilk	Dairy product	fats + water	100		140	V	SiC	Ca	EPDM	EPDM
Butyl alcohol (butanol)	Hydrocarbon	$CH_3(CH_2)_3OH$					SiC	Ca	EPDM	EPDM
Calcium acetate	Salt	$C_4H_6O_4Ca$	10		140	VS	SiC	Ca	EPDM	EPDM
Calcium nitrate (non-acidic)	Salt	$Ca(NO_3)_2$	10		140	VS	TuC	TuC	FPM	FPM
Cider (apple cider)	Alcohol	H_2O + sucrose + alcohol	100		104	V	SiC	Ca	EPDM	EPDM
Citric acid	Acid	$C_3H_4(OH)(COOH)_3$	5		68	VS	SiC	Ca	FPM	FPM
Copper sulphate	Salt	$CuSO_4 \cdot 5H_2O$	5		176	V	TuC	TuC	HNBR	HNBR
Corn oil	Vegetable oil		100		212	VS	SiC	Ca	FPM	FPM
Diesel oil	Hydrocarbons					V	SiC	Ca	FPM	FPM
Diethylene glycol (salt-free)	Alcohol	$C_4H_{10}O_3$	100		212	VC	SiC	Ca	EPDM	EPDM
Ethanol (alcohol)	Hydrocarbon	C_2H_5OH	100		140	V	SiC	Ca	EPDM	EPDM

Media description	Media group	Chemical formula	Cons. max. [%]	PH max.	Temp max. [°F]	Model	Material shaft seal			Material pump
							rotor	stator	elas-tomer	elas-tomer
Ethylene glycol (salt-free)	Alcohol	$(CH_2OH)_2$	100		212	V	SiC	Ca	EPDM	EPDM
Ferric-III-chloride	Salt	$FeCl_3$	5		176	V	TuC	TuC	FPM	FPM
Fuel oil (light)	Hydrocarbon				176	VS	SiC	Ca	FPM	FPM
Glycerin (glycerol)	Alcohol	$C_3H_8O_3$	40		176	V	SiC	Ca	EPDM	EPDM
Kerosene	Hydrocarbon		100		176	V	SiC	Ca	FPM	FPM
Linseed oil	Vegetable oil		100		140	V	SiC	Ca	FPM	FPM
Linseed oil + 3% sulphur acid	Vegetable oil		100		140	V	SiC	Ca	FPM	FPM
Magnesium sulphate	Salt	$MgSO_4$	10		176	V	SiC	Ca	FPM	FPM
Malic acid	Acid	$C_4H_2O_3$				V	SiC	Ca	FPM	FPM
Methanol	Alcohol	CH_3OH				V	SiC	Ca	EPDM	EPDM
Methyl glycol (propylene glycol)	Alcohol	$C_3H_6(OH)_2$	100		68	VC	SiC	Ca	EPDM	EPDM
Milk	Dairy product	fats + water				V	SiC	Ca	EPDM	EPDM
Olive oil	Vegetable oil					VC	SiC	Ca	FPM	FPM
Oxalic acid	Acid	$H_2C_2O_4$	5		68	V	SiC	Ca	EPDM	EPDM
Oxalic acid	Acid	$H_2C_2O_4$	5		Boiling	VS	SiC	Ca	FPM	FPM
Oxalic acid	Acid	$H_2C_2O_4$	10		140	V	SiC	Ca	EPDM	EPDM
Paraffins	Hydrocarbon					V	SiC	Ca	FPM	FPM
Peanut oil	Vegetable oil		100		194	V	SiC	Ca	FPM	FPM
Petroleum	Hydrocarbon	Hydrocarbon	100		176	V	SiC	Ca	FPM	FPM
Potassium chlorate	Salt	$KClO_3$				VS	TuC	TuC	HNBR	HNBR
Potassium chloride	Salt	KCl				V	SiC	Ca	EPDM	EPDM
Potassium hydroxide	Salt	KOH	5		104	VS	SiC	Ca	EPDM	EPDM
Potassium nitrate	Salt	KNO_3	5		86	VS	TuC	TuC	HNBR	HNBR
Potassium sulphate	Salt	K_2SO_4	3		68	VS	SiC	Ca	FPM	FPM
Rape-seed oil	Vegetable oil	mixture			212	VS	SiC	Ca	FPM	FPM
Sodium carbonate	Salt	Na_2CO_3	6		140	V	SiC	Ca	EPDM	EPDM
Sodium chloride	See sea water	NaCl								
Sodium hydroxide (soda lye)	Salt	NaOH	5		122	VS	TuC	TuC	HNBR	HNBR
Sodium nitrate (non acidic)	Salt	$NaNO_3$	10		140	V	SiC	Ca	EPDM	EPDM
Sodium phosphate	Salt	Na_3PO_4				V	SiC	Ca	EPDM	EPDM
Sodium sulphate (non acidic)	Salt	Na_2SO_4	5		140	V	SiC	Ca	EPDM	EPDM
Soybean oil	Vegetable oil		100		212	V	SiC	Ca	FPM	FPM
Spirits	Alcohol	H_2O + sucrose + alcohol	40		140	V	SiC	Ca	EPDM	EPDM
Sulphuric acid	Acid	H_2SO_4	5		86	VS	TuC	TuC	FPM	FPM
Tannic acid	Acid	$C_{76}H_{52}O_{46}$	20		176	V	SiC	Ca	FPM	FPM
Tartaric acid	Acid	$C_4H_6O_6$	8		104	VS	SiC	Ca	FPM	FPM
Vinegar (wine vinegar)	Acid	CH_3COOH	10		140	VS	SiC	Ca	EPDM	EPDM
Water, untreated / suspended solids <20 ppm	Water	H_2O + ...	100		140	VC	TuC	Ca	EPDM	EPDM

Media description	Media group	Chemical formula	Cons. max. [%]	PH max.	Temp max. [°F]	Model	Material shaft seal			Material pump
							rotor	stator	elastomer	
Water, boiler feed water (conform. Vd TÜV 1466)	Water	H ₂ O + ...	100		248	VC	TuC	Ca	EPDM	EPDM E425
Water, brackish	Sea water	H ₂ O + ...	100	7	41	V	TuC	TuC	FPM	FPM
Water, brackish	Sea water	H ₂ O + ...	100	7	50	V	TuC	TuC	FPM	FPM
Water, brackish	Sea water	H ₂ O + ...	100	7	59	VS	TuC	TuC	FPM	FPM
Water, brackish	Sea water	H ₂ O + ...	100	7	68	VS	TuC	TuC	FPM	FPM
Water, brackish	Sea water	H ₂ O + ...	100	7	77	VS	TuC	TuC	FPM	FPM
Water, coast water	Sea water	H ₂ O + ...	100	7	41	VS	TuC	TuC	FPM	FPM
Water, coast water	Sea water	H ₂ O + ...	100	7	50	VS	TuC	TuC	FPM	FPM
Water, coast water	Sea water	H ₂ O + ...		7	59	VS	TuC	TuC	FPM	FPM
Water, condensate (conform Vd TÜV 1466)	Water	H ₂ O + ...	100		212	VS	TuC	TuC	EPDM	EPDM
Water, cooling water	Water	H ₂ O + ...			212	VS	TuC	TuC	FPM	FPM
Water, de-carbonised (softened)	Water	H ₂ O + ...	100		248	V	TuC	TuC	HNBR	HNBR
Water, de-ionised	Water	H ₂ O + ...			248	V	SiC	Ca	EPDM	EPDM
Water, distilled	Water	H ₂ O + ...				V	SiC	Ca	EPDM	EPDM
Water, fire fighting	Water	H ₂ O + ...	100		140	VC	TuC	TuC	HNBR	HNBR
Water, harbour	Sea water	H ₂ O + ...	100	7	41	VS	TuC	TuC	FPM	FPM
Water, harbour	Sea water	H ₂ O + ...	100	7	50	VS	TuC	TuC	FPM	FPM
Water, heating (conform Vd TÜV 1466)	Water	H ₂ O + ...	100		248	VC	SiC	Ca	EPDM	EPDM
Water, (conform VDI 2035)	Water	H ₂ O + ...	100		212	VC	TuC	Ca	EPDM	EPDM
Water, oil water mixture	Water		5		176	V	SiC	Ca	FPM	FPM
Water, ordinary sea water	Sea water	H ₂ O + ...	100	7	41	V	TuC	TuC	FPM	FPM
Water, ordinary sea water	Sea water	H ₂ O + ...	100	7	50	VS	TuC	TuC	FPM	FPM
Water, ordinary sea water	Sea water	H ₂ O + ...	100	7	59	VS	TuC	TuC	FPM	FPM
Water, ordinary sea water	Sea water	H ₂ O + ...	100	7	68	VS	TuC	TuC	FPM	FPM
Water, pure (chemically neutral)	Water	H ₂ O + ...	100		140	V	SiC	Ca	EPDM	EPDM
Water, rinsing	Water	H ₂ O + ...			158	VS	TuC	TuC	FPM	FPM
Water, swimming-pool (chlorine 0.8 mg/l)	Water	H ₂ O + ...			77	VS	SiC	Ca	FPM	FPM
Water, tap (drinking water)	Water	H ₂ O + ...	100		140	V	SiC	Ca	EPDM	EPDM WRc/ ACS

dp pumps

LENNTECH

info@lennotech.com Tel. +31-152-610-900

www.lennotech.com Fax. +31-152-616-289

Original instructions

97004480 C

Subject to modifications. Digital alteration, publication or distribution of the content of this document without prior notice is strictly prohibited.

Permission for use, copying and distribution of this document as published by DP-Pumps is granted on the condition that no part of the document is used for information or commercial purposes outside of the DP-Pumps organisation or one of its recognised dealerships.