ROTAMAC

Vertical Multi-Stage Pumps
Series VMN

50 Hz
Vertical inline installation
IE3 premium efficiency motor
with and without variable speed control

Application
ROTAMAC VMN are used for general water supply, spray irrigation, irrigation and pressure boosting duties, for warm water, hot water and cooling water recirculation, condensate transport, boiler feed circuits, domestic water supply systems, washing plants, water treatment and filter systems, degreasing baths/alkaline cleaning agents, alkaline solutions and oils/emulsions, fire-fighting systems, as well as for reverse osmosis and surface treatment applications.

Design
Multistage, vertical installation, high-pressure centrifugal pump, with suction and discharge nozzles of identical nominal diameters arranged opposite to each other (in-line design).

Electric motor, 50 Hz, air-cooled, 2-pole, IEC standard motor, efficiency class IE3 [from 0.75 kW].

Available with integrated frequency converter designed for speed-controlled operation. Other motor makes subject to prior consultation with ROTAMAC.

Short Designation

VMN 45 - 3 - 2 AA BC BC

- Model
- Pump size
- Number of impeller stage
- Number of undersize impeller
- Materials
  - • pump head
  - • impeller
  - • shaft

[AA = cast iron, BC = AISI304, BD = AISI316]

Material Construction

Pump head	cast iron
	stainless steel 304
	stainless steel 316
Impeller and Shaft	stainless steel 304
	stainless steel 316
Shaft seal	single cartridge seal

Operating Data

Flow rate	Q	up to 240 m3/h
Head	H	up to 300 m
Operating pressure	P	up to 30 bar
Operating temperature	T	up to 120 deg C
Motor rated output		up to 110 kW
Voltage		230Δ/400Y
		[220-240/380-415]
Frequency and Phase		50Hz/3Ph

Special Voltage

Single phase [0.37-2.2kW]	220-230/240
Three phase	200-220Δ/346-380Y
	220-255Δ/380-440Y

Note: Other voltages are available on request.

Optional motors
The ROTAMAC standard range of motors covers a wide variety of application demands. However, for special applications or operating conditions, custom-built motor solutions can be provided.

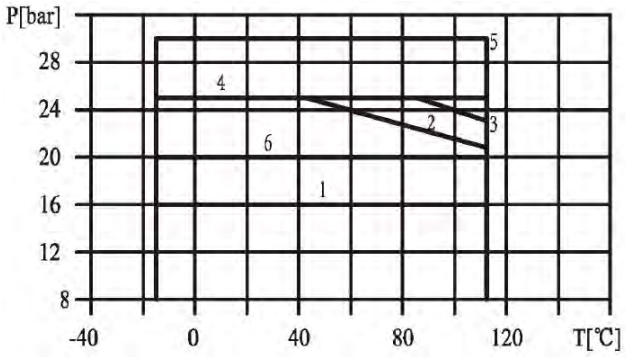
For special applications or operating conditions, we offer custom-built motors such as
- • ATEX-approved motors
- • motors with anti-condensation heating unit
- • motors with thermal protection.

Pump Material
Select the material variant on the basis of the liquid to be pumped.
The product range covers the following three basic types.
• Cast iron pump head
Use cast iron pump head for clean, non-aggressive liquids, such as potable water and service water, for application such as liquid transfer, circulation and pressure boosting of cold or hot clean water.
• Stainless steel 304
• Stainless steel 316
All parts in contact with the liquid must be made of high-grade stainless steel.
Use stainless steel pumps for industrial liquids and acids.

Shaft Seal
As standard, the VMN range is fitted with a ROTAMAC shaft seal (cartridge type) suitable for the most common applications.
These key parameters must be taken into account when selecting the shaft seal:
• type of pumped liquid
• liquid temperature
• maximum pressure.
We offer a wide range of shaft seal variants to meet specific demands.

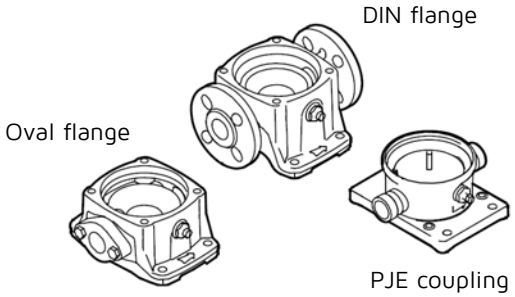
The VMN standard shaft seal is an uncooled, single mechanical, cartridge type, maintenance-free, SiC/Carbon/FPM material. This is not suitable for fluids containing solids. This rule also covers particles developing as a result of salt crystallisation at low fluid temperatures. Other materials are available on request.

Maximum Permissible Operating Pressure
The following picture and data shows the maximum permissible operating pressure. If the maximum permissible operating pressure is exceeded, the pump and bearing in the motor may be damaged and the life of the shaft seal reduced.



Curve 1 : sizes 32-1-1 to 32-7, 45-1-1 to 45-6, 64-1-1 to 64-5 and 90-1-1 to 90-5-2
Curve 2 : all sizes of 1, 2, 3 and 4
Curve 3 : all sizes of 8, 12, 16 and 20
Curve 4 : sizes 32-8-2 to 32-12, 45-7-2 to 45-9, 64-6-2 to 64-8-1 and 90-5 to 90-6
Curve 5 : sizes 32-13-2 to 32-16 and 45-10-2 to 45-13-2
Curve 6 : all sizes of 120, 150 and 200
Note : The curve 4 &5 need customized.

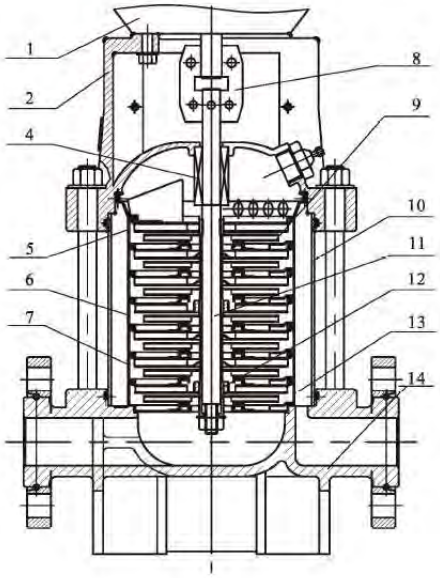
Pump Connections
Selection of pump connection depends on the rated pressure and pipework. To meet any requirement, the VMN pumps offer a wide range of flexible connections, such as
• DIN flange
• ASME flange
• oval flange (BSP)
• PJE coupling
• clamp coupling
• union (+GF+)
• other connections on request.



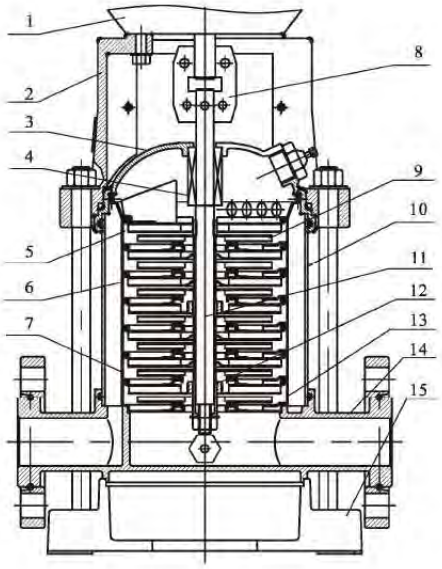
Pump Drive
The pumps are optionally available with the PumpDrive speed control system.

ROTAMAC also offer highly efficient version pumps with a built-in frequency converter or pumps with an external frequency converter. These combine the very best of pump technology with highly efficient motors and variable speed drives.

Sectional Drawing
VMN 1, 2, 3, 4



Cast Iron Pump Head



All Wetted Parts in Stainless Steel

Materials , cast iron version

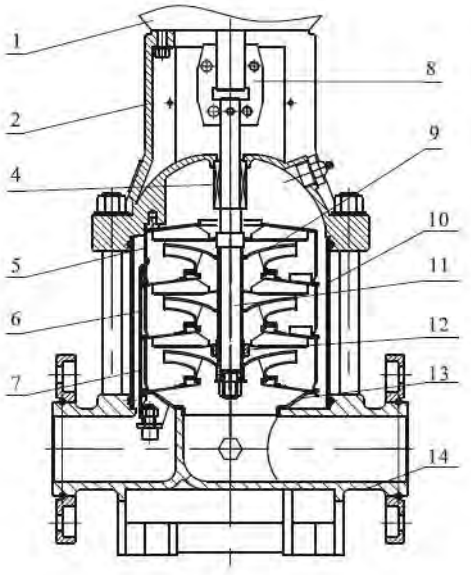
Pos.	Designation	Material	AISI/ASTM
1	Motor	Assembling Unit	
2	Support	Cast Iron Ductile Iron	ASTM25B ASTM70-50-05
4	Mechanical Seal	Assembling Unit	
5	Outlet Guide Vane	Stainless Steel	AISI304
6	Guide Vane	Stainless Steel	AISI304
7	Support Guide Vane	Stainless Steel	AISI304
8	Coupling	Ductile Iron	ASTM70-50-05
9	Impeller	Stainless Steel	AISI304
10	Shell	Stainless Steel	AISI304
11	Pump Shaft	Stainless Steel	AISI304 AISI316L
12	Bearing	Tungsten Carbide	
13	Inlet Guide Vane	Stainless Steel	AISI304
14	Pump head	Cast Iron	ASTM25B

Materials , stainless steel version

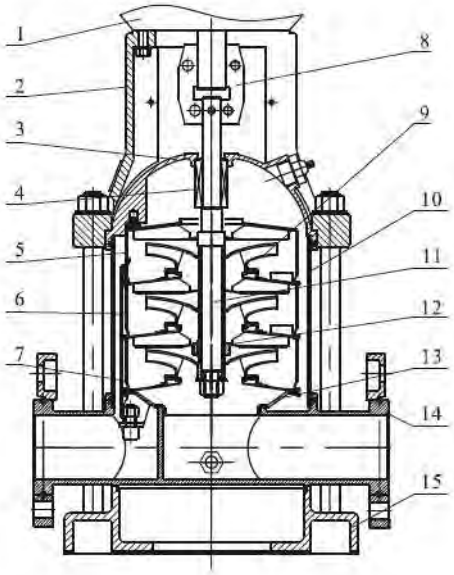
Pos.	Designation	Material	AISI/ASTM
1	Motor	Assembling Unit	
2	Support	Cast Iron Ductile Iron	ASTM25B ASTM70-50-05
3	Seal Seat	Stainless Steel	AISI304
4	Mechanical Seal	Assembling Unit	
5	Outlet Guide Vane	Stainless Steel	AISI304
6	Guide Vane	Stainless Steel	AISI304
7	Support Guide Vane	Stainless Steel	AISI304
8	Coupling	Ductile Iron	ASTM70-50-05
9	Impeller	Stainless Steel	AISI304
10	Shell	Stainless Steel	AISI304
11	Pump Shaft	Stainless Steel	AISI304 AISI316L
12	Bearing	Tungsten Carbide	
13	Inlet Guide Vane	Stainless Steel	AISI304
14	Pump head	Stainless Steel	AISI304
15	Seat	Cast Iron	ASTM25B

Note:
316 stainless steel materials are available on request.

Sectional Drawing
VMN 8, 12, 16, 20



Cast Iron Pump Head



All Wetted Parts in Stainless Steel

Materials , cast iron version

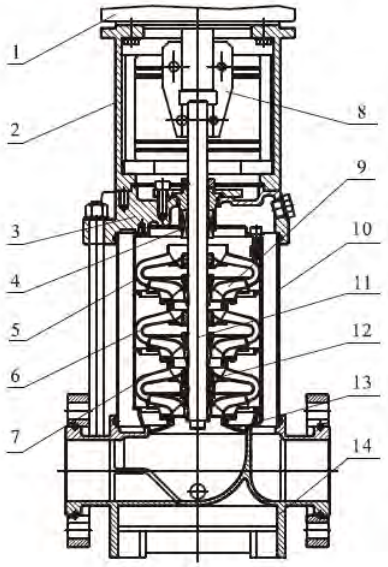
Pos.	Designation	Material	AISI/ASTM
1	Motor	Assembling Unit	
2	Support	Cast Iron Ductile Iron	ASTM25B ASTM70-50-05
4	Mechanical Seal	Assembling Unit	
5	Outlet Guide Vane	Stainless Steel	AISI304
6	Guide Vane	Stainless Steel	AISI304
7	Support Guide Vane	Stainless Steel	AISI304
8	Coupling	Ductile Iron	ASTM70-50-05
9	Impeller	Stainless Steel	AISI304
10	Shell	Stainless Steel	AISI304
11	Pump Shaft	Stainless Steel	AISI304 AISI316L
12	Bearing	Tungsten Carbide	
13	Inlet Guide Vane	Stainless Steel	AISI304
14	Pump head	Cast Iron	ASTM25B

Materials , stainless steel version

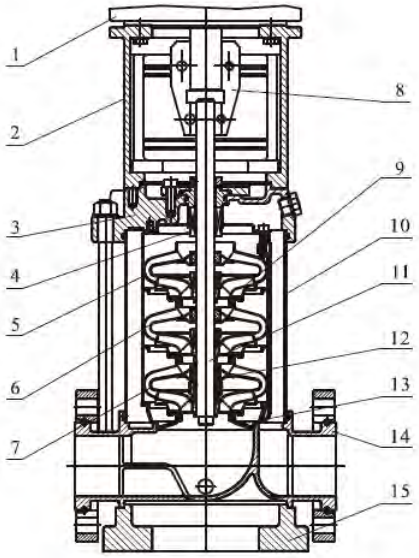
Pos.	Designation	Material	AISI/ASTM
1	Motor	Assembling Unit	
2	Support	Cast Iron Ductile Iron	ASTM25B ASTM70-50-05
3	Seal Seat	Stainless Steel	AISI304
4	Mechanical Seal	Assembling Unit	
5	Outlet Guide Vane	Stainless Steel	AISI304
6	Guide Vane	Stainless Steel	AISI304
7	Support Guide Vane	Stainless Steel	AISI304
8	Coupling	Ductile Iron	ASTM70-50-05
9	Impeller	Stainless Steel	AISI304
10	Shell	Stainless Steel	AISI304
11	Pump Shaft	Stainless Steel	AISI304 AISI316L
12	Bearing	Tungsten Carbide	
13	Inlet Guide Vane	Stainless Steel	AISI304
14	Pump head	Stainless Steel	AISI304
15	Seat	Cast Iron	ASTM25B

Note:
316 stainless steel materials are available on request.

Sectional Drawing
VMN 32, 45, 64, 90



Cast Iron Pump Head



All Wetted Parts in Stainless Steel

Materials , cast iron version

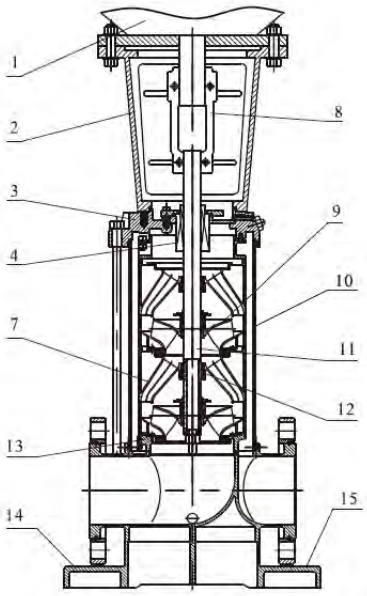
Pos.	Designation	Material	AISI/ASTM
1	Motor	Assembling Unit	
2	Support	Cast Iron Ductile Iron	ASTM25B ASTM70-50-05
3	Seat Seal	Cast Iron Ductile Iron	ASTM25B ASTM70-50-05
4	Mechanical Seal	Assembling Unit	
5	Outlet Guide Vane	Stainless Steel	AISI304
6	Guide Vane	Stainless Steel	AISI304
7	Support Guide Vane	Stainless Steel	AISI304
8	Coupling	Ductile Iron	ASTM70-50-05
9	Impeller	Stainless Steel	AISI304
10	Shell	Stainless Steel	AISI304
11	Pump Shaft	Stainless Steel	AISI304 AISI316L AISI431
12	Bearing	Tungsten Carbide	
13	Inlet Guide Vane	Stainless Steel	AISI304
14	Pump head	Cast Iron Ductile Iron	ASTM25B ASTM70-50-05

Materials , stainless steel version

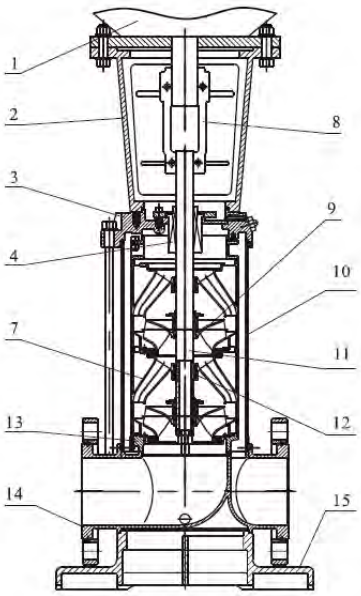
Pos.	Designation	Material	AISI/ASTM
1	Motor	Assembling Unit	
2	Support	Cast Iron Ductile Iron	ASTM25B ASTM70-50-05
3	Seat Seal	Stainless Steel	AISI304
4	Mechanical Seal	Assembling Unit	
5	Outlet Guide Vane	Stainless Steel	AISI304
6	Guide Vane	Stainless Steel	AISI304
7	Support Guide Vane	Stainless Steel	AISI304
8	Coupling	Ductile Iron	ASTM70-50-05
9	Impeller	Stainless Steel	AISI304
10	Shell	Stainless Steel	AISI304
11	Pump Shaft	Stainless Steel	AISI304 AISI316L AISI431
12	Bearing	Tungsten Carbide	
13	Inlet Guide Vane	Stainless Steel	AISI304
14	Pump head	Stainless Steel	AISI304
15	Seat	Cast Iron	ASTM25B

Note:
316 stainless steel materials are available on request.

Sectional Drawing
VMN 120, 150, 200



Cast Iron Pump Head



All Wetted Parts in Stainless Steel

Materials , cast iron version

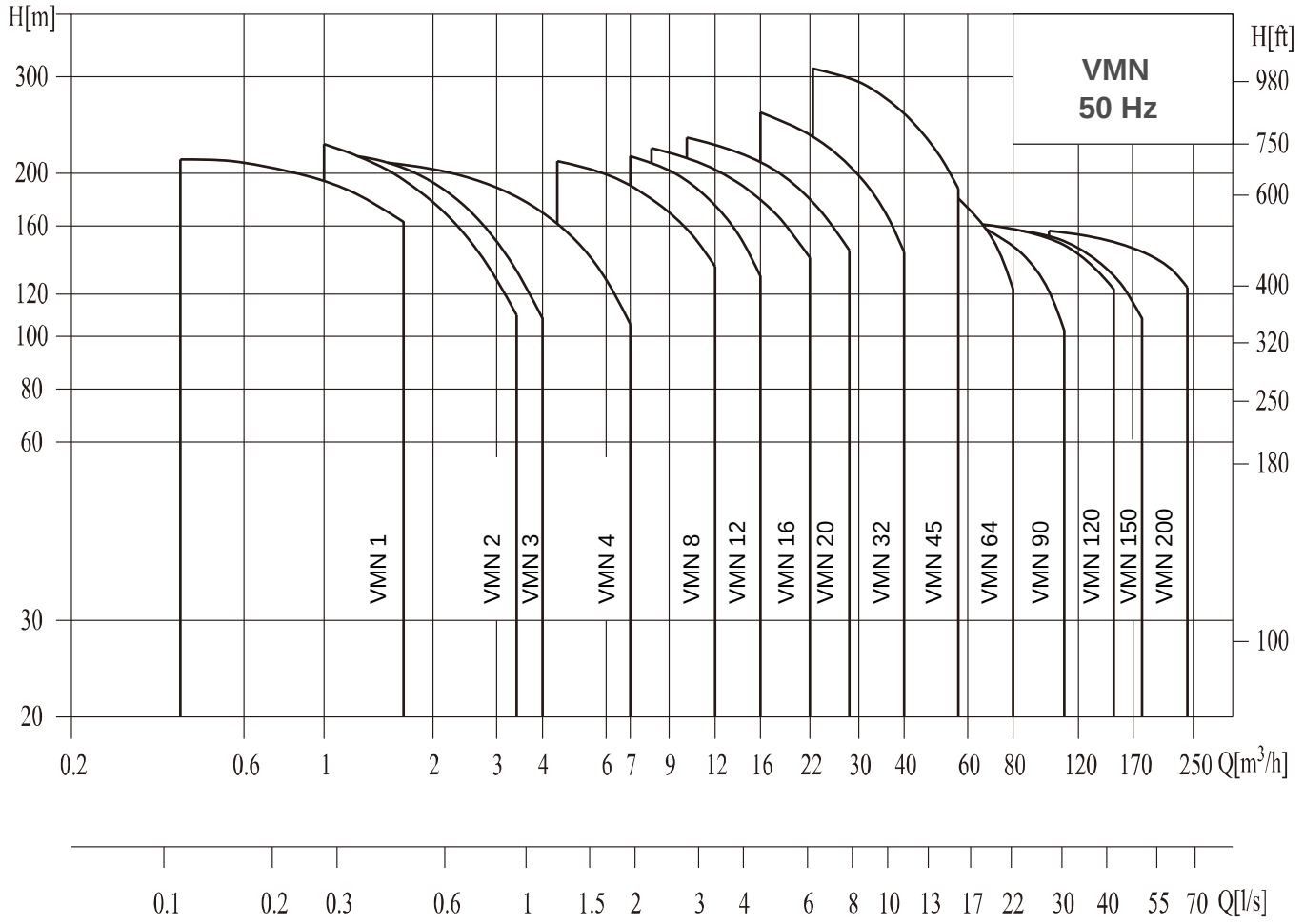
Pos.	Designation	Material	AISI/ASTM
1	Motor	Assembling Unit	
2	Frame	Cast Iron Ductile Iron	ASTM25B ASTM70-50-05
3	Seat Seal	Ductile Iron	ASTM70-50-05
4	Mechanical Seal	Assembling Unit	
6	Support Guide Vane	Stainless Steel	AISI304
8	Coupling	Ductile Iron	ASTM70-50-05
9	Impeller	Stainless Steel	AISI304
10	Shell	Stainless Steel	AISI304
11	Pump Shaft	Stainless Steel	AISI304 AISI316L AISI431
12	Bearing	Tungsten Carbide	
13	Inlet Guide Vane	Stainless Steel	AISI304
14	Pump head	Cast Iron Ductile Iron	ASTM25B ASTM70-50-05
15	Seat	Ductile Iron	ASTM70-50-05

Materials , stainless steel version

Pos.	Designation	Material	AISI/ASTM
1	Motor	Assembling Unit	
2	Frame	Cast Iron Ductile Iron	ASTM25B ASTM70-50-05
3	Seat Seal	Stainless Steel	AISI304
4	Mechanical Seal	Assembling Unit	
6	Support Guide Vane	Stainless Steel	AISI304
8	Coupling	Ductile Iron	ASTM70-50-05
9	Impeller	Stainless Steel	AISI304
10	Shell	Stainless Steel	AISI304
11	Pump Shaft	Stainless Steel	AISI304 AISI316L AISI431
12	Bearing	Tungsten Carbide	
13	Inlet Guide Vane	Stainless Steel	AISI304
14	Pump head	Stainless Steel	AISI304
15	Seat	Ductile Iron	ASTM70-50-05

Note:
316 stainless steel materials are available on request.

Performance Range



Guidelines to Performance Curves

The guidelines below apply to the curves shown on the following pages:

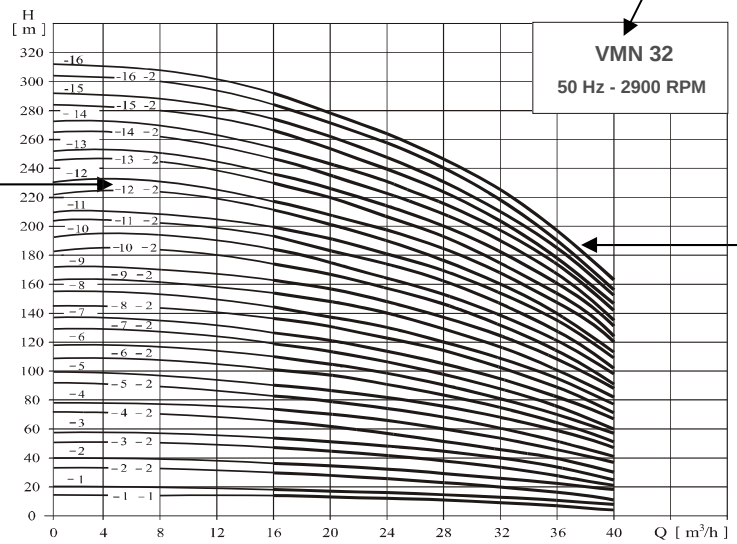
- Tolerances to ISO 9906:2012, class 3B, Below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed.
- The motors used for the measurements are standard ROTAMAC motors.
- Measurements have been made with airless water at a temperature of 20 °C.
- The curves apply to the following kinematic viscosity: = 1 mm2/s (1 cSt).
- Due to the risk of overheating, the pumps should not be used at a flow below the minimum flow rate.
- The QH curves apply to a rated motor speed of a three-phase mains-operated motor.
- The efficiency of pump with undersize impeller is lower 2% than the curve value.
- The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s).
- The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Minimum/Maximum Flow Rate

Size	Minimum Flow [m3/h]	Maximum Flow [m3/h]
1	0.4	1.8
2	1	3.5
3	1.2	4
4	1.5	7
8	5	12
12	7	16
16	8	22
20	10	28
32	16	40
45	25	55
64	30	80
90	50	110
120	60	150
150	80	180
200	100	240

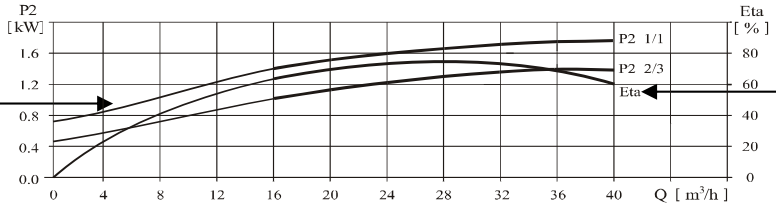
How to read the curve charts

Pump Size , Frequency , Running Speed



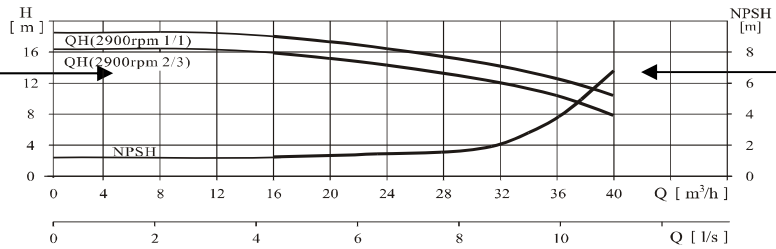
Number of stages.
First figure: number of stages.
Second figure: number of undersize impellers.

QH curve for the individual pump. The bold curves indicate the recommended duty range.



The power curves Indicate pump input power per stage. Curves are shown for complete (1/1) and for undersize impellers (2/3).

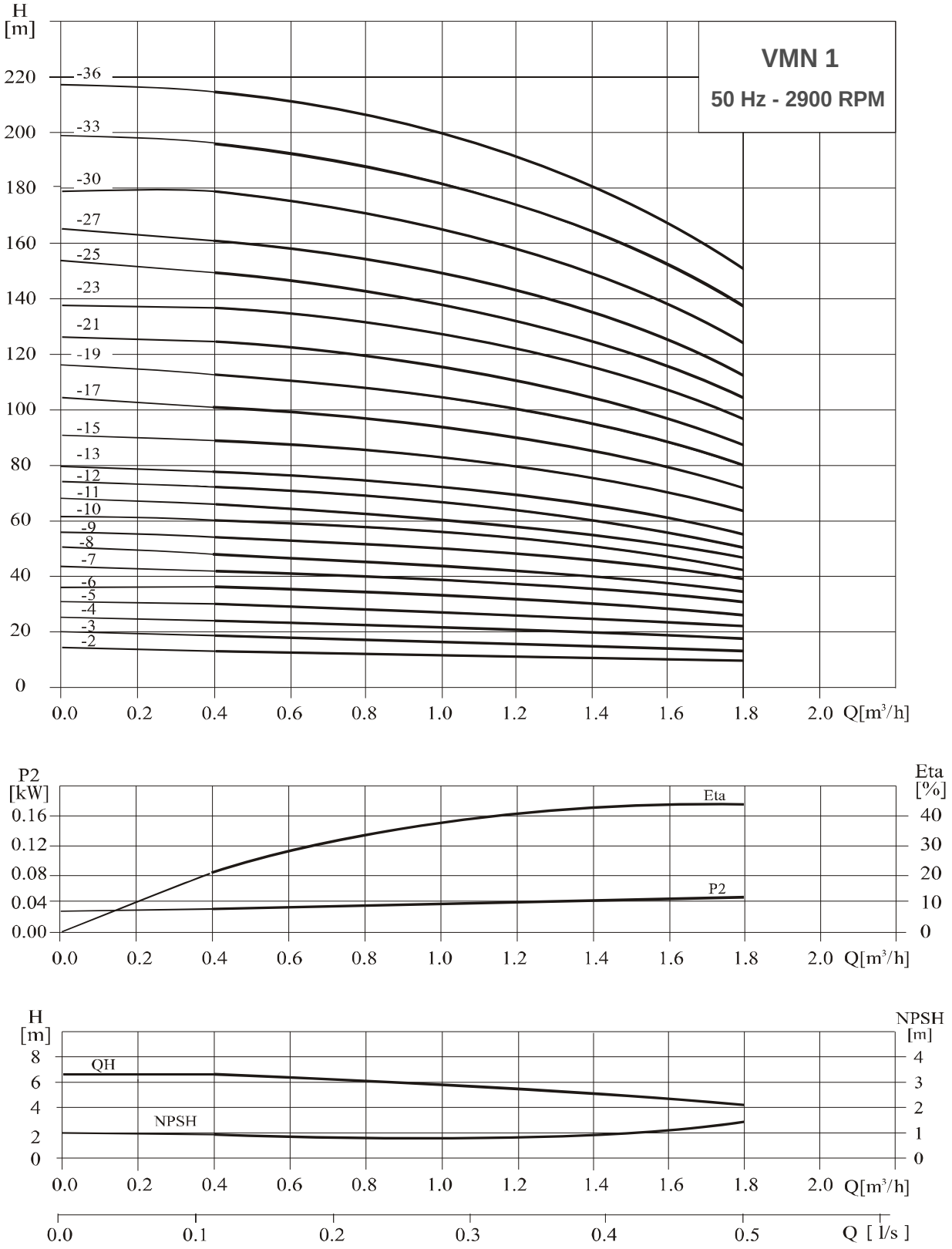
The eta curve shows the efficiency of the pump. The eta curve is an average curve of all the pump types shown in the chart.
The efficiency of pumps with undersize impellers is approx. 2 % lower than the eta curve shown in the chart.



QH curve for each individual impeller. Curves for complete (1/1) and undersize impellers (2/3) are shown.

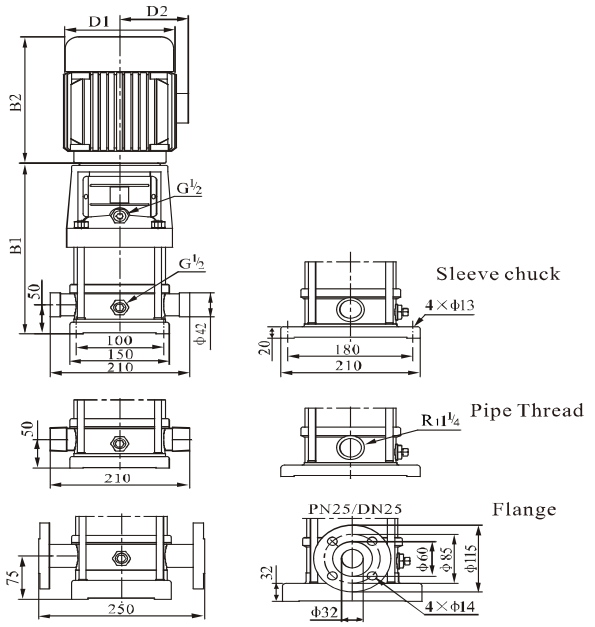
The NPSH curve is an average curve for all the variants shown. When sizing the pumps, add a safety margin of at least 0.5 m.

Performance Range



The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



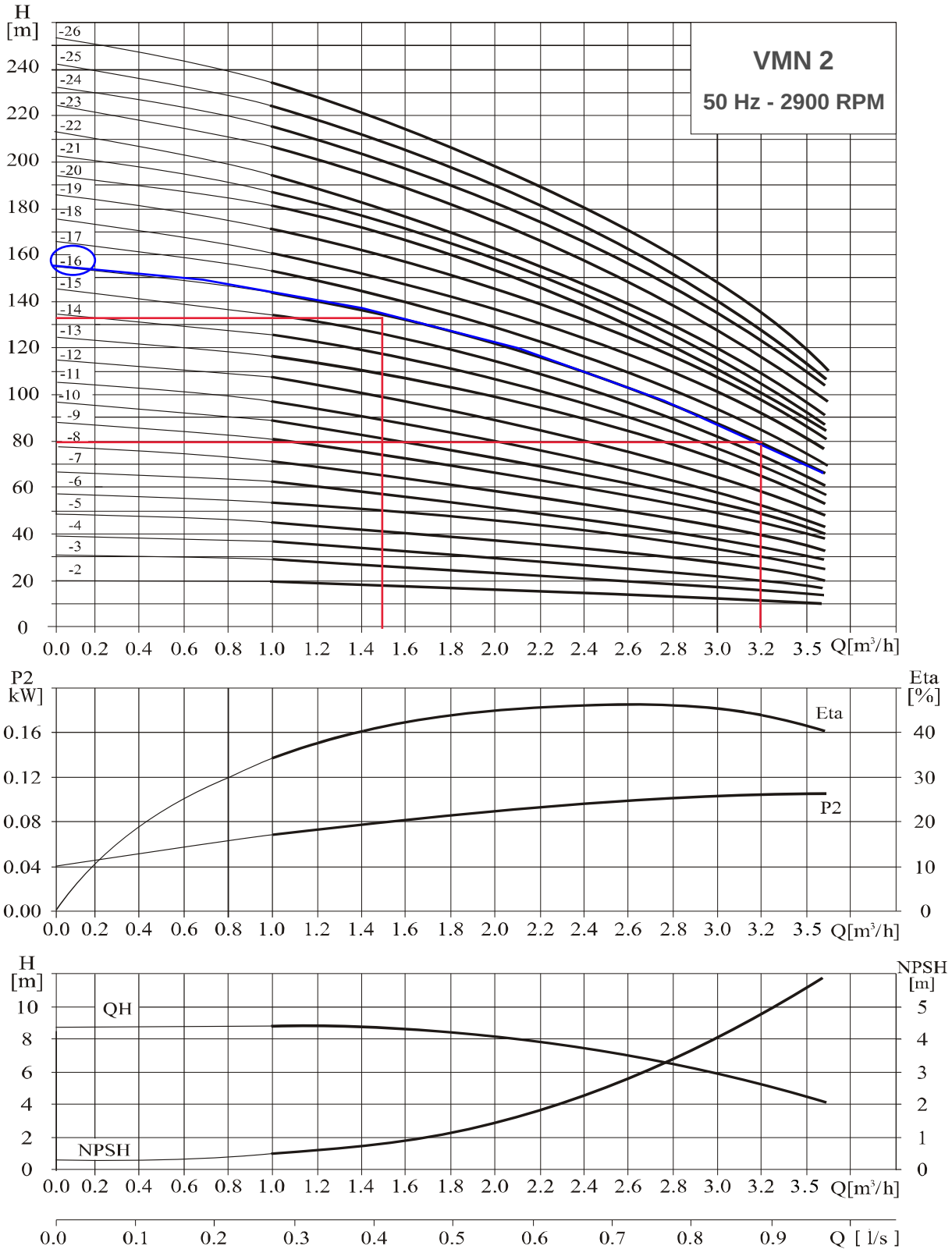
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
1-2	258	225	483	148	117	20
1-3	276	225	501	148	117	20
1-4	294	225	519	148	117	21
1-5	312	225	537	148	117	21
1-6	330	225	555	148	117	22
1-7	348	225	573	148	117	23
1-8	366	225	591	148	117	24
1-9	384	225	609	148	117	25
1-10	402	225	627	148	117	26
1-11	420	225	645	148	117	26
1-12	448	245	693	170	142	29
1-13	466	245	711	170	142	30
1-15	502	245	747	170	142	31
1-17	538	245	783	170	142	33
1-19	574	245	819	170	142	34
1-21	610	245	855	170	142	35
1-23	646	245	891	170	142	36
1-25	692	290	982	190	155	42
1-27	728	290	1018	190	155	43
1-30	782	290	1072	190	155	45
1-33	836	290	1126	190	155	49
1-36	890	290	1180	190	155	51

Performance Table

Model	Associated motor(kW)	Q (m^3/h)	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8
1-2	0.37		13	12.5	12	11.5	11	10.5	10	9.5
1-3	0.37		19	18	17.5	17	16.5	16	15	14
1-4	0.37		24	23.5	23	22.5	21.5	21	19	18
1-5	0.37		30	29.6	29	28	27	26	24	22
1-6	0.37		36	35.5	35	33.5	33	31	28	26
1-7	0.37		42	41	40.5	39	38	36	33	30
1-8	0.55		48	47	46	45	43	41	38	34
1-9	0.55		54	53	52	51	49	46	43	39
1-10	0.55		60	59	58	57	54	51	48	43
1-11	0.55		66	65	63	61	59	56	52	47
1-12	0.75	H	72	71	69	67	64	61	57	51
1-13	0.75	(m)	78	77	75	73	69	66	62	55
1-15	0.75		89	88	86	84	79	76	71	63
1-17	1.1		101	99	97	95	89	86	80	71
1-19	1.1		113	110	108	106	99	96	89	79
1-21	1.1		124	122	120	117	110	106	98	87
1-23	1.1		137	133	131	128	121	116	107	96
1-25	1.5		149	145	143	139	131	126	116	104
1-27	1.5		161	157	155	150	141	136	125	112
1-30	1.5		178	175	171	166	157	150	139	124
1-33	2.2		196	192	188	183	173	165	154	137
1-36	2.2		214	210	205	200	190	181	169	151

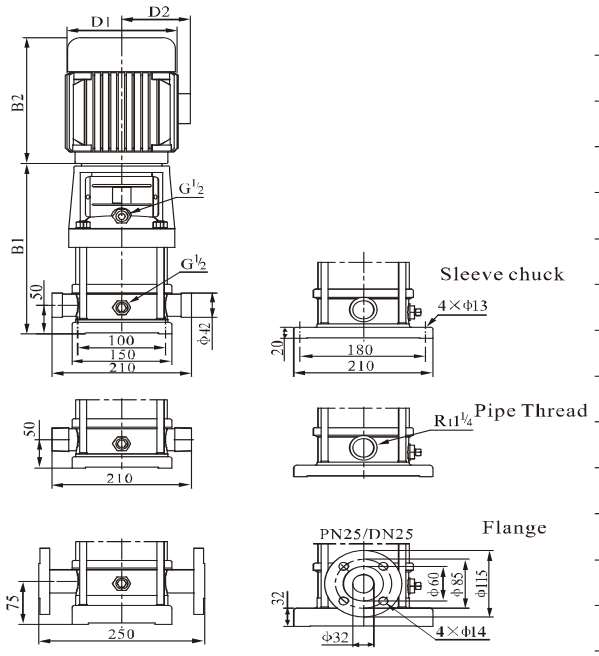
Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range



The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



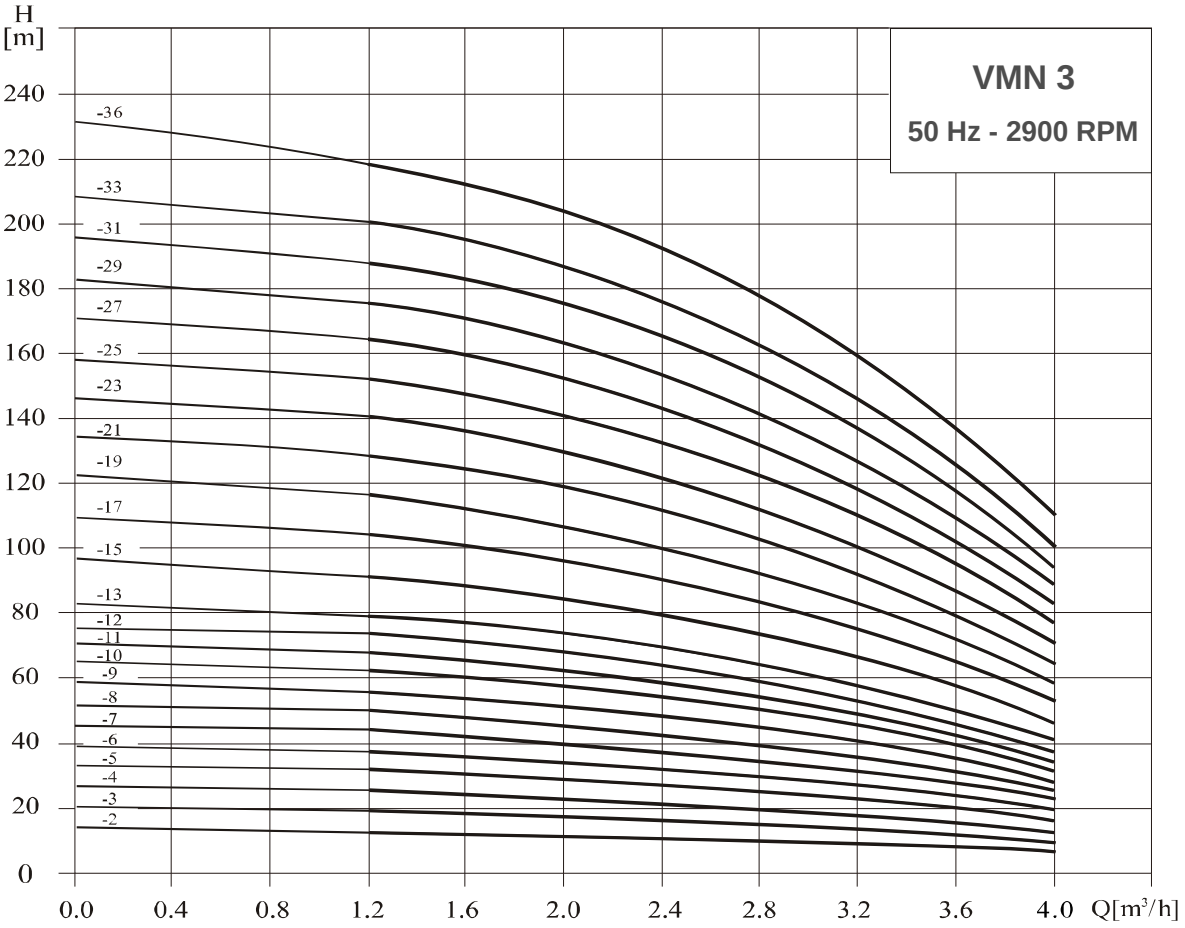
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
2-2	258	225	483	148	117	20
2-3	276	225	501	148	117	20
2-4	294	225	519	148	117	22
2-5	312	225	537	148	117	23
2-6	340	245	585	170	142	26
2-7	358	245	603	170	142	26
2-9	394	245	639	170	142	28
2-11	430	245	675	170	142	29
2-13	476	290	766	190	155	35
2-15	512	290	802	190	155	36
2-18	566	290	856	190	155	41
2-22	638	290	928	190	155	42
2-26	720	345	1065	197	165	52

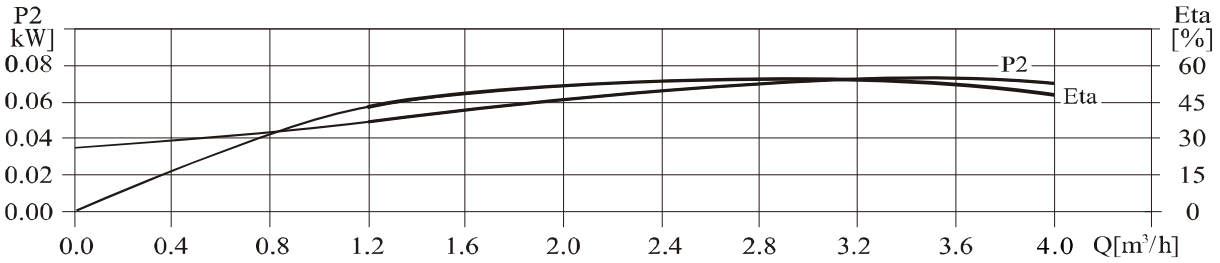
Performance Table

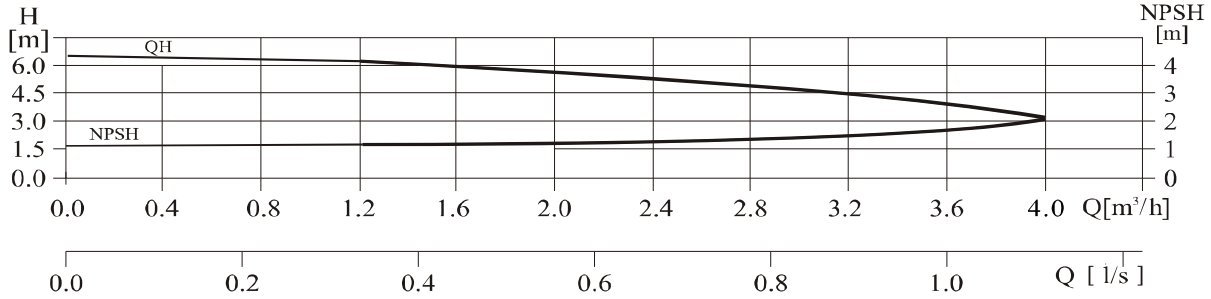
Model	Associated motor(kW)	Q (m^3/h)	1	1.2	1.6	2.0	2.4	2.8	3.2	3.5
2-2	0.37	H (m)	18	17	16	15	13	12	10	8
2-3	0.37		27	26	24	22	20	18	15	12
2-4	0.55		36	35	33	30	26	24	20	16
2-5	0.55		45	43	40	37	33	30	24	20
2-6	0.75		53	52	50	45	40	36	30	24
2-7	0.75		63	61	57	52	47	41	35	28
2-9	1.1		80	78	73	67	61	54	45	37
2-11	1.1		98	95	89	82	73	64	54	44
2-13	1.5		116	114	106	98	89	78	65	52
2-15	1.5		134	130	123	112	100	90	73	60
2-18	2.2		161	157	148	136	121	108	91	76
2-22	2.2		197	192	180	165	148	130	110	90
2-26	3.0		232	228	214	198	179	158	130	110

Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range

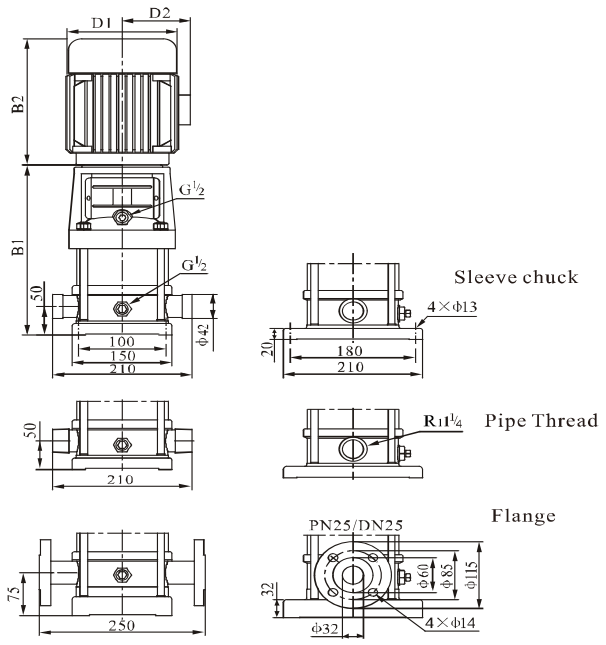






The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



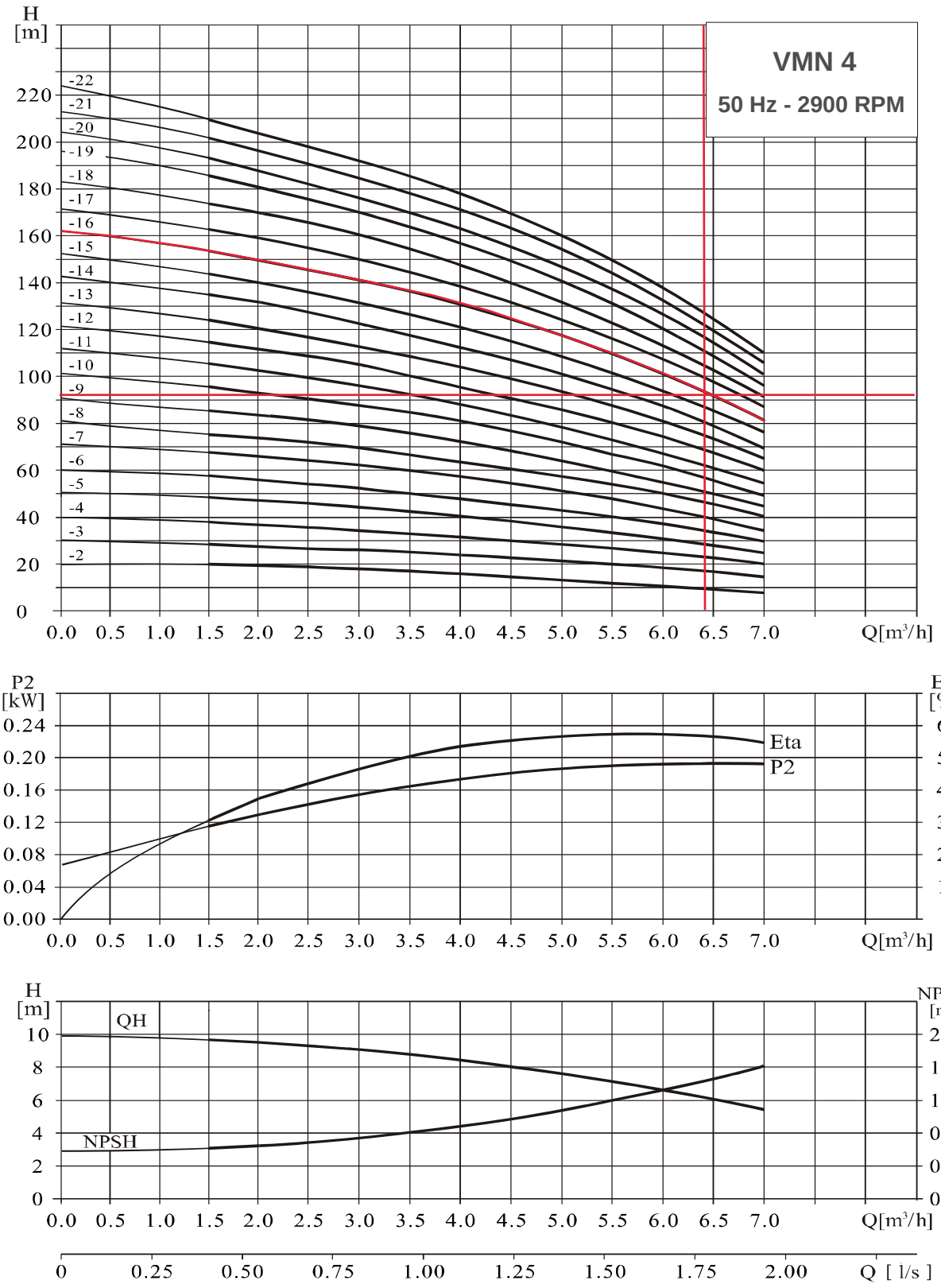
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
3-2	258	225	483	148	117	20
3-3	276	225	501	148	117	20
3-4	294	225	519	148	117	21
3-5	312	225	537	148	117	21
3-6	330	225	555	148	117	23
3-7	348	225	573	148	117	24
3-8	376	245	621	170	142	27
3-9	394	245	639	170	142	28
3-10	412	245	657	170	142	28
3-11	430	245	675	170	142	29
3-12	448	245	693	170	142	30
3-13	466	245	711	170	142	31
3-15	502	245	747	170	142	32
3-17	548	290	838	190	155	38
3-19	584	290	874	190	155	39
3-21	620	290	910	190	155	42
3-23	656	290	946	190	155	43
3-25	692	290	982	190	155	44
3-27	728	290	1018	190	155	45
3-29	764	290	1054	190	155	46
3-31	810	345	1155	197	165	54
3-33	846	345	1191	197	165	55
3-36	900	345	1245	197	165	57

Performance Table

Model	Associated motor(kW)	Q (m^3/h)	1.2	1.6	2.0	2.4	2.8	3.0	3.2	3.6	4.0
3-2	0.37	H (m)	12.5	11.5	11	10.5	10	9	8	7	6
3-3	0.37		19	18.5	17.5	16.5	15	14	13	11	9
3-4	0.37		25	24	23	21.5	20	19	18	15	12
3-5	0.37		31	30	29	27	25	23	22	19	16
3-6	0.55		36	35	34	32	30	28	27	23	19
3-7	0.55		43	41	39	37	34	32	31	27	22
3-8	0.75		49	47	45	43	39	37	35	31	25
3-9	0.75		55	53	51	48	45	42	40	35	28
3-10	0.75		61	59	57	54	50	47	45	39	31
3-11	1.1		67	64	61	58	54	51	49	42	34
3-12	1.1		73	70	67	63	58	55	52	45	37
3-13	1.1		78	76	73	69	64	60	57	49	40
3-15	1.1		90	88	84	79	73	69	66	57	46
3-17	1.5		103	100	96	90	83	79	75	64	52
3-19	1.5		115	112	107	100	92	88	83	72	58
3-21	2.2		128	124	119	112	102	98	91	79	64
3-23	2.2		140	135	130	122	112	107	100	86	70
3-25	2.2		151	147	141	131	122	116	109	94	76
3-27	2.2		164	159	152	143	132	124	117	101	82
3-29	2.2		175	170	163	153	142	133	126	109	88
3-31	3.0		187	182	175	165	153	142	135	116	94
3-33	3.0		199	194	187	176	163	151	145	125	100
3-36	3.0		218	212	204	192	178	168	159	137	109

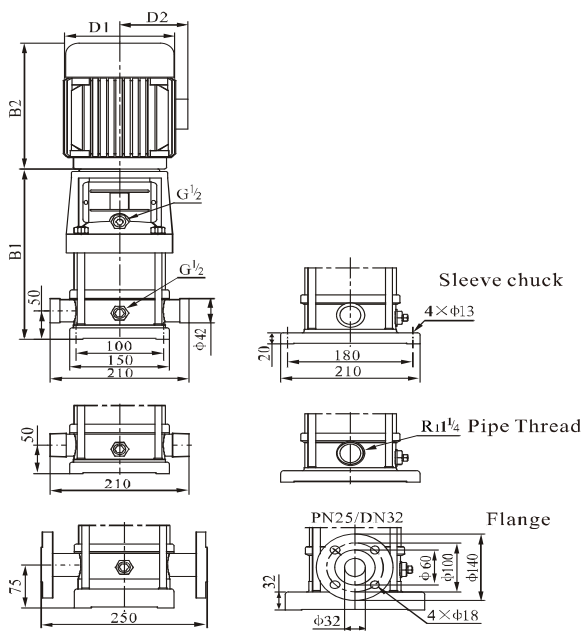
Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range



The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



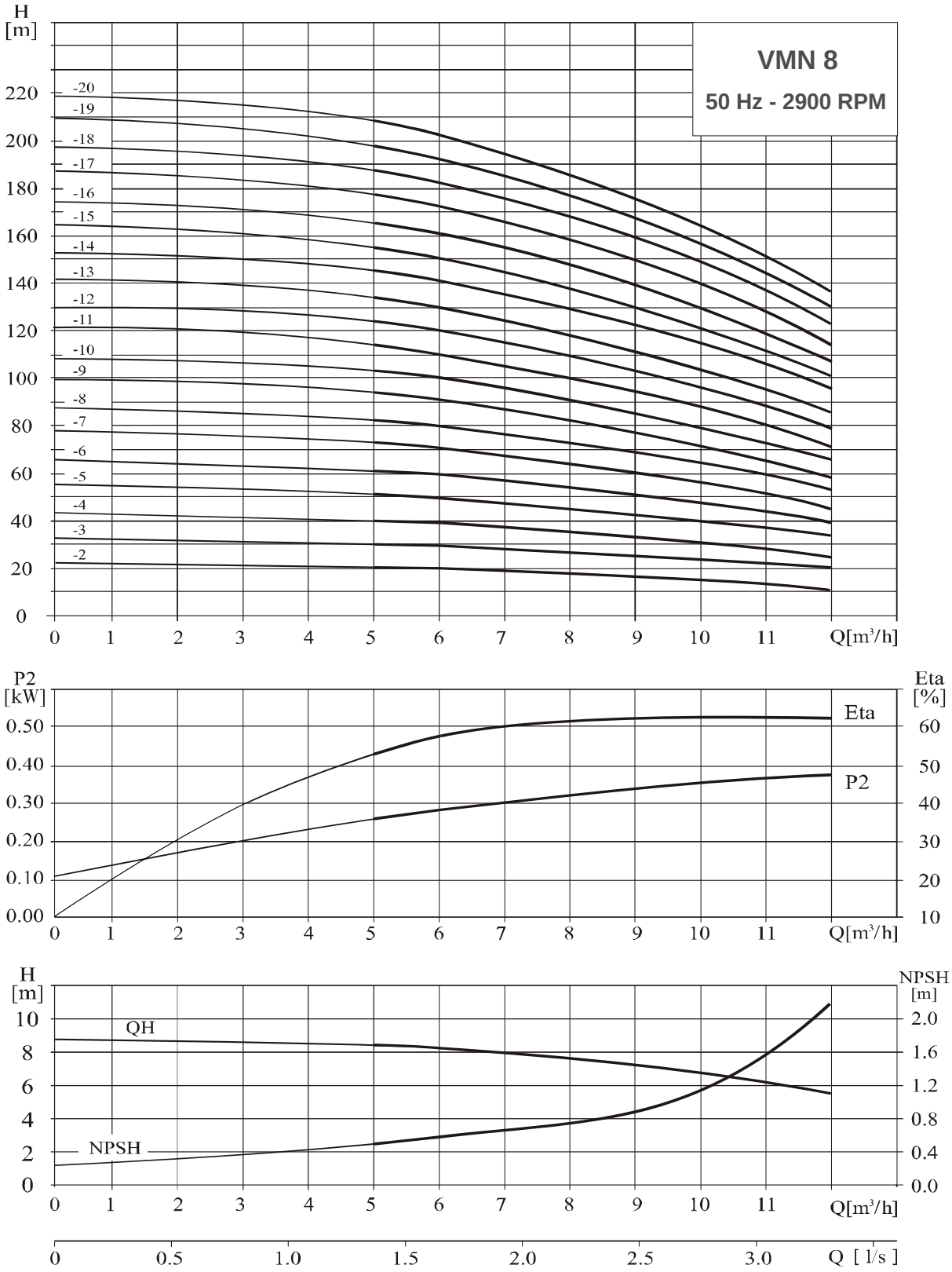
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
4-2	276	225	501	148	117	21
4-3	303	225	528	148	117	22
4-4	340	245	585	170	142	25
4-5	367	245	612	170	142	27
4-6	394	245	639	170	142	27
4-7	431	290	721	190	155	33
4-8	458	290	748	190	155	33
4-10	512	290	802	190	155	37
4-12	566	290	856	190	155	38
4-14	630	345	975	197	165	46
4-16	684	345	1029	197	165	48
4-19	765	355	1120	230	188	57
4-22	846	355	1201	230	188	59

Performance Table

Model	Associated motor(kW)	Q (m^3/h)	1.5	2.0	3.0	4.0	5.0	6.0	7.0
4-2	0.37	H (m)	19	18	17	15	13	10	8
4-3	0.55		28	27	26	24	20	18	13
4-4	0.75		38	36	34	32	27	24	19
4-5	1.1		47	45	43	40	34	31	23
4-6	1.1		56	54	52	48	41	37	28
4-7	1.5		66	63	61	56	48	43	33
4-8	1.5		74	72	70	64	55	50	38
4-10	2.2		96	90	87	81	71	62	48
4-12	2.2		114	108	104	95	85	75	58
4-14	3.0		136	126	122	112	101	89	68
4-16	3.0		152	144	140	129	115	101	78
4-19	4.0		183	171	168	153	137	122	93
4-22	4.0		211	200	192	178	160	138	108

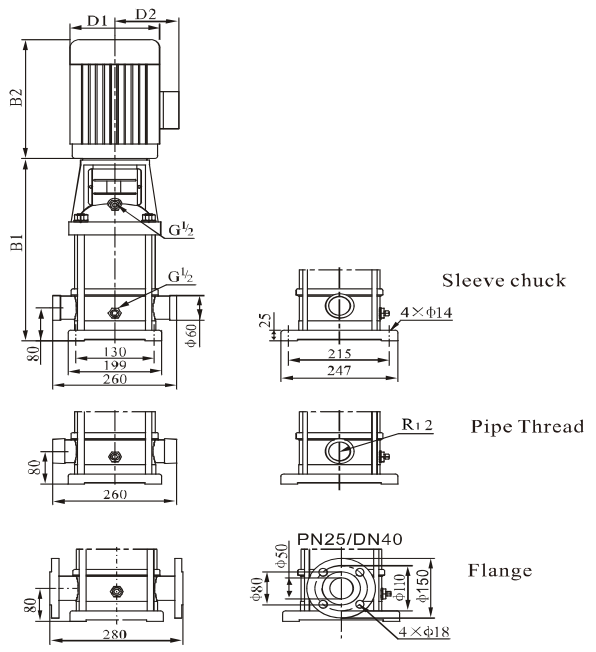
Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range



The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



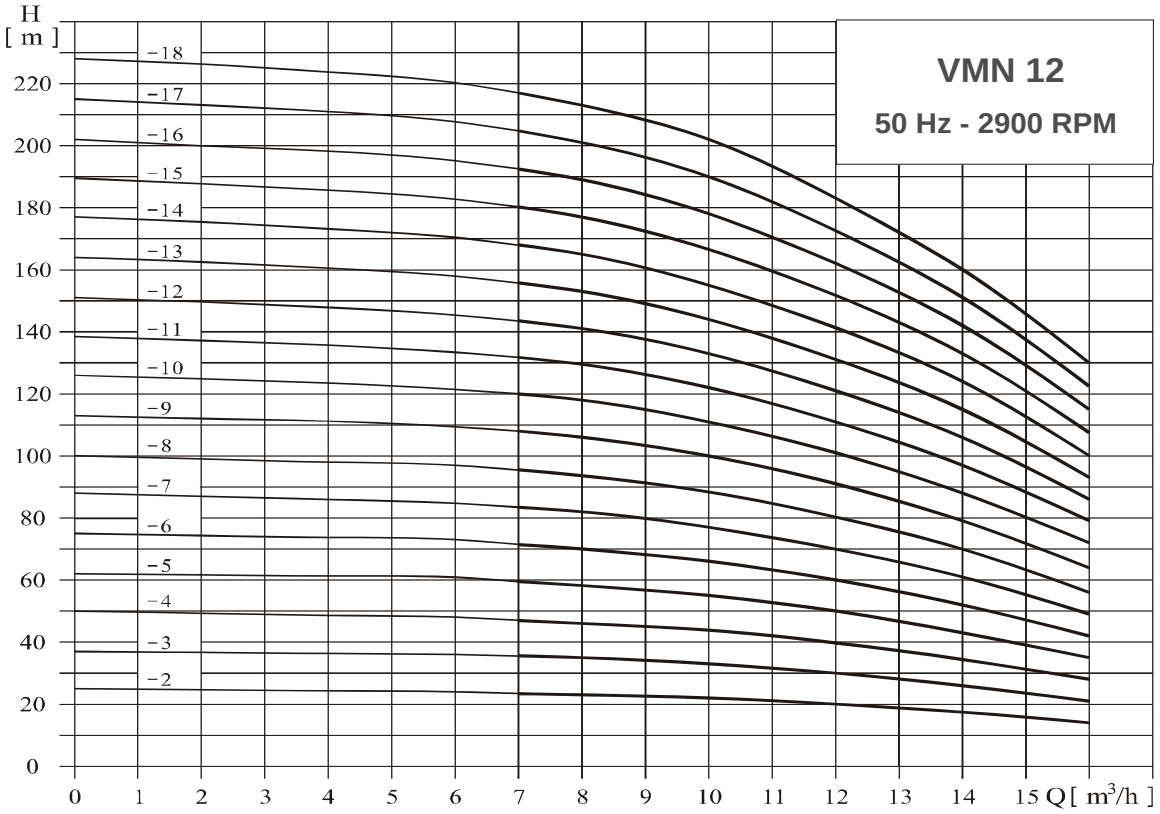
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
8-2	347	245	592	170	142	32
8-3	377	245	622	170	142	34
8-4	417	290	707	190	155	40
8-5	447	290	737	190	155	44
8-6	477	290	767	190	155	45
8-8	547	345	892	197	165	53
8-10	607	355	962	230	188	64
8-12	667	355	1022	230	188	66
8-14	747	390	1137	260	208	81
8-16	807	390	1197	260	208	84
8-18	867	390	1257	260	208	93
8-20	927	390	1317	260	208	94

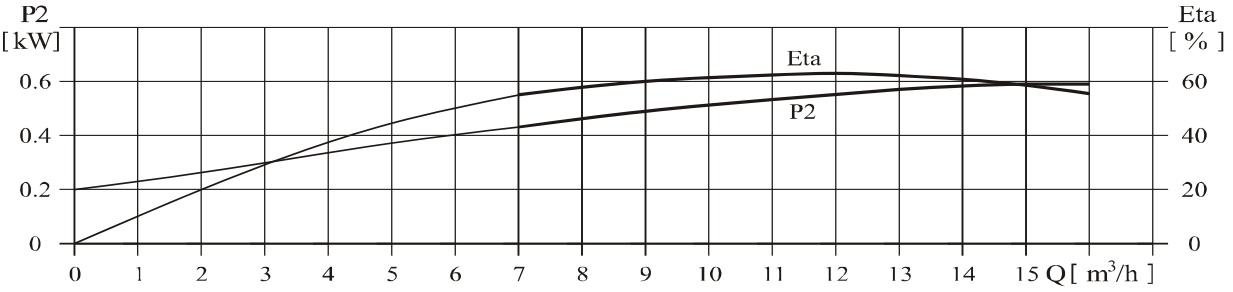
Performance Table

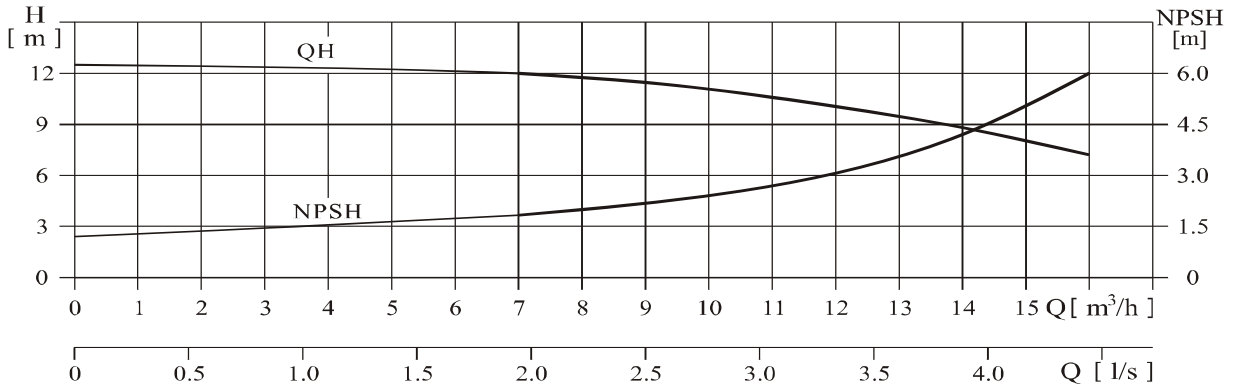
Model	Associated motor(kW)	Q (m^3/h)	5	6	7	8	9	10	11	12
8-2	0.75	H (m)	20	19.5	19	18	17	16	14	13
8-3	1.1		30	29.5	28.5	27	25	24	21	19
8-4	1.5		41	39.5	38	36	34	32	28	26
8-5	2.2		52	50	48	45	42	40	36	32
8-6	2.2		62	60	57	54	51	48	43	39
8-8	3.0		83	80	77	73	69	65	58	52
8-10	4.0		104	100	97	92	87	81	73	65
8-12	4.0		124	120	116	111	104	92	87	78
8-14	5.5		145	141	136	130	122	113	102	92
8-16	5.5		166	161	156	148	139	130	118	106
8-18	7.5		187	182	175	167	157	146	134	120
8-20	7.5		208	202	195	186	175	163	150	135

Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range

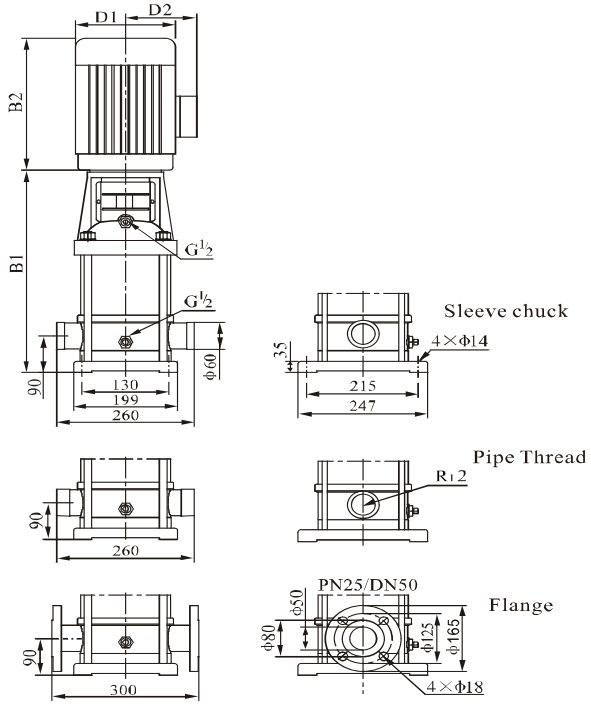






The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



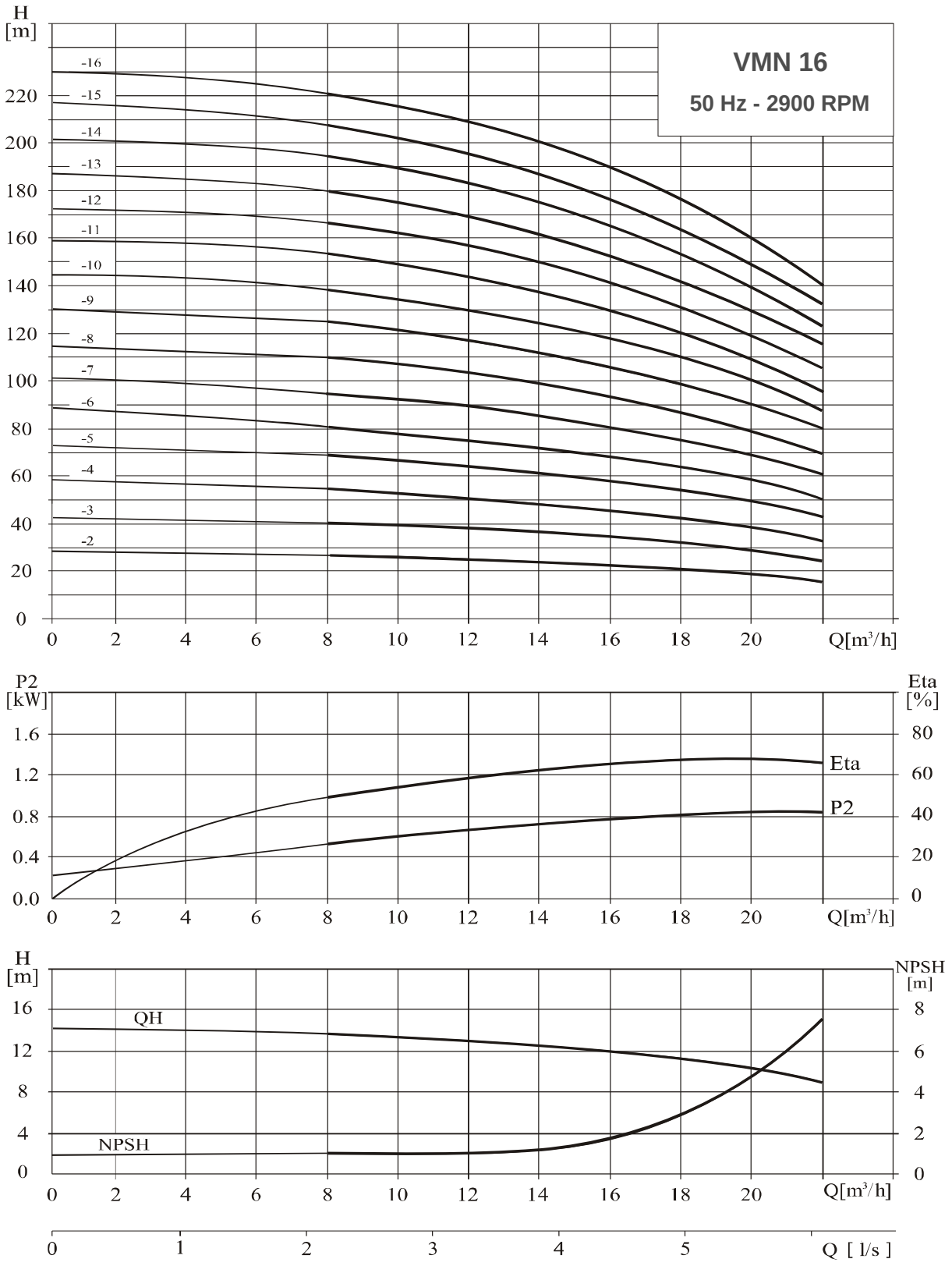
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
12-20	367	290	657	190	155	39
12-3	397	290	687	190	155	43
12-4	437	345	782	197	165	51
12-5	467	345	812	197	165	53
12-6	497	355	852	230	188	61
12-7	547	390	937	260	208	73
12-8	577	390	967	260	208	74
12-9	607	390	997	260	208	76
12-10	637	390	1027	260	208	83
12-12	697	390	1087	260	208	87
12-14	757	390	1147	260	208	108
12-16	905	500	1405	330	255	161
12-18	965	500	1465	330	255	164

Performance Table

Model	Associated motor(kW)	Q (m^3/h)	7	8	9	10	11	12	13	14	15	16
12-2	1.5	H (m)	23.5	23	22.5	22	21	20	18.5	17	15.5	14
12-3	2.2		35.5	35	34	33	31.5	30	28	26	23.5	21
12-4	3		47	46	45	44	42	40	37	34	31	28
12-5	3		59.5	58	56.5	55	52.5	50	46.5	43	39	35
12-6	4		71.5	70	68	66	63	60	56	52	47	42
12-7	5.5		83.5	82	79.5	77	73.5	70	65.5	61	55	49
12-8	5.5		95.5	94	91	88	84	80	75	70	63	56
12-9	5.5		108	106	103	100	95.5	91	85	79	71.5	64
12-10	7.5		120	118	114.5	111	106	101	94.5	88	80	72
12-12	7.5		143.5	141	137	133	127	121	113.5	106	96	86
12-14	9.2		168	165	160	155	148	141	132.5	124	112	100
12-16	11		192.5	189	183.5	178	170	162	152	142	128.5	115
12-18	11		217	213	207.5	202	192.5	183	171.5	160	145	130

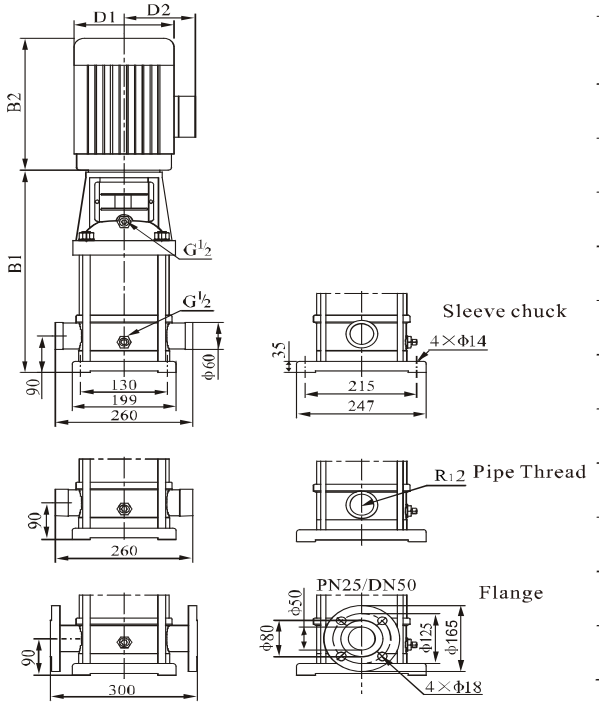
Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range



The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



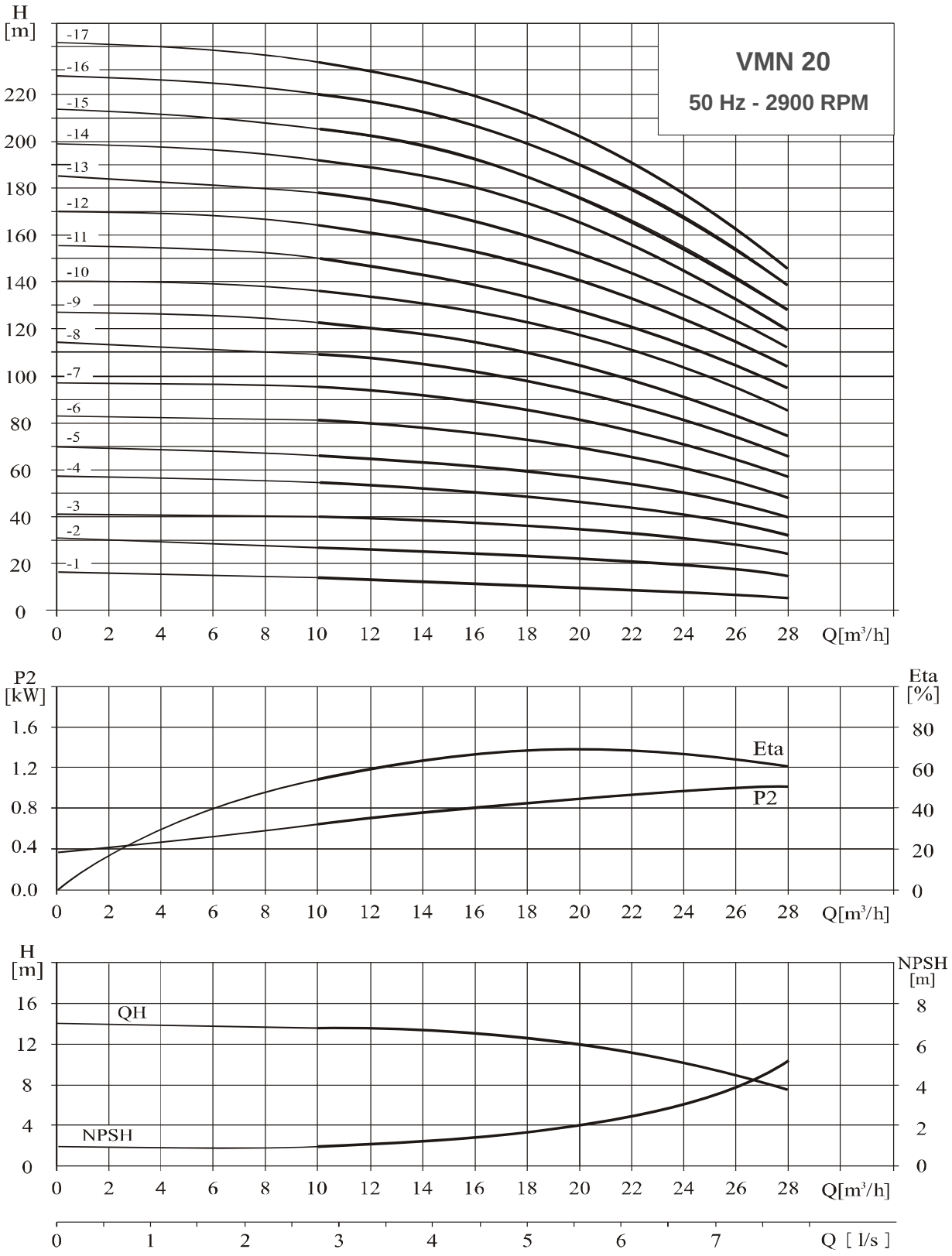
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
16-2	397	290	687	190	155	42
16-3	452	345	797	197	165	50
16-4	497	355	852	230	188	59
16-5	562	390	952	260	208	76
16-6	607	390	997	260	208	77
16-7	652	390	1042	260	208	84
16-8	697	390	1087	260	208	86
16-10	787	390	1177	260	208	106
16-12	965	500	1465	330	255	161
16-14	1055	500	1555	330	255	174
16-16	1145	500	1645	330	255	178

Performance Table

Model	Associated motor(kW)	Q (m^3/h)	8	10	12	14	16	18	20	22
16-2	2.2	H (m)	27	26	25	24	22	21	19	16
16-3	3.0		41	40	38	37	34	32	29	25
16-4	4.0		54	53	52	49	46	43	38	34
16-5	5.5		68	67	65	62	58	54	48	43
16-6	5.5		82	80	78	74	70	64	58	52
16-7	7.5		96	95	91	87	82	76	68	61
16-8	7.5		110	108	104	99	94	86	77	70
16-10	9.2		138	136	131	125	118	109	97	87
16-12	11		166	162	157	150	141	130	116	105
16-14	15		194	190	184	175	166	152	136	122
16-16	15		222	217	210	200	189	174	156	140

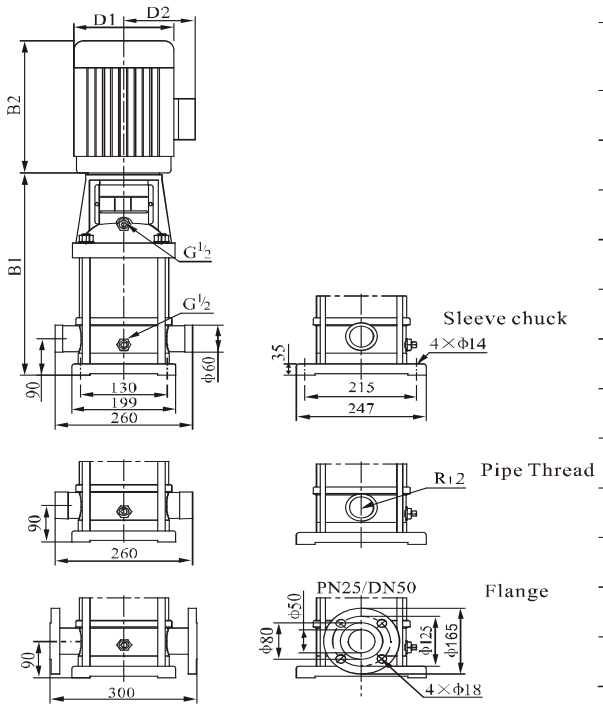
Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range



The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



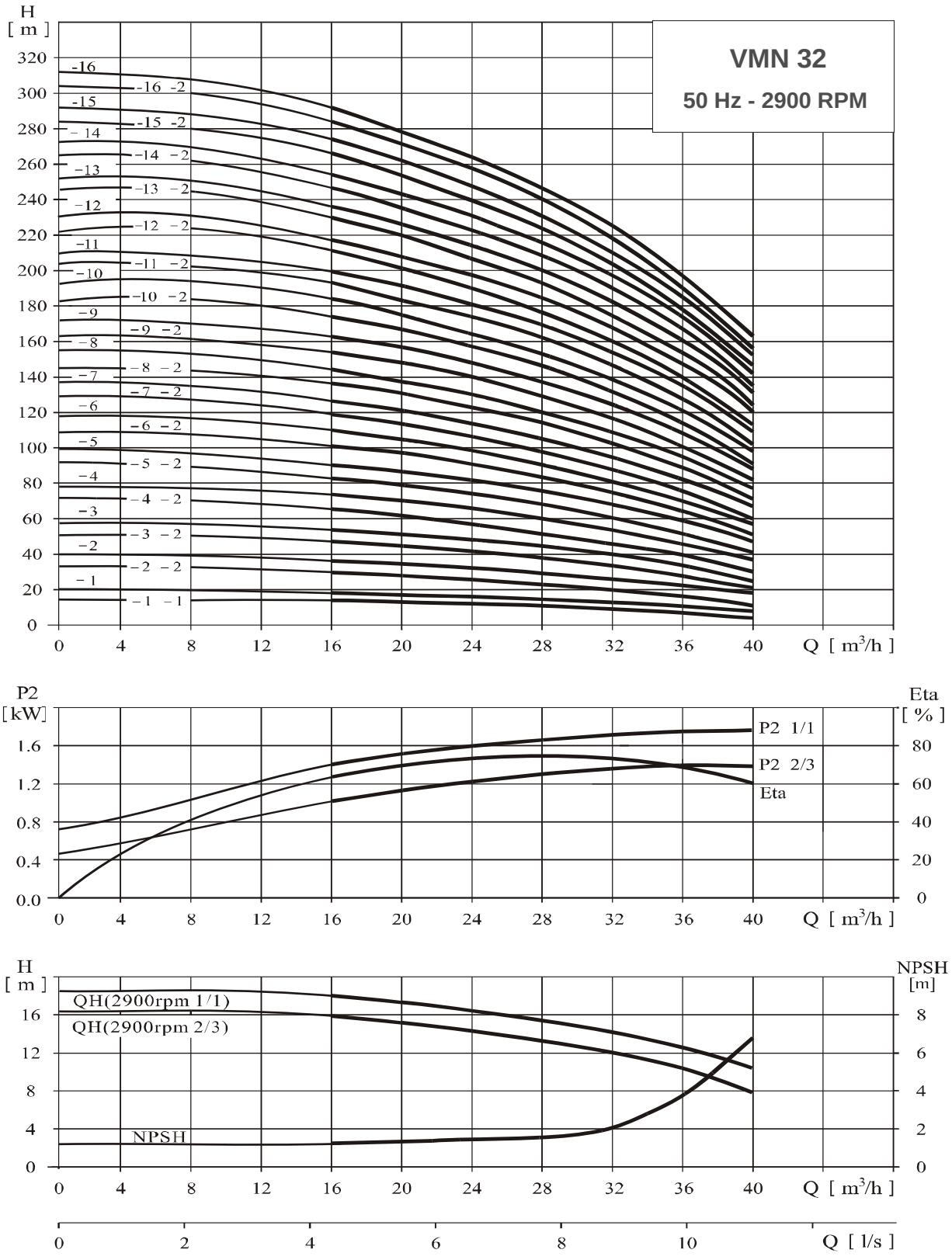
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
20-1	387	245	632	170	142	33
20-2	397	290	687	190	155	42
20-3	452	355	807	230	188	58
20-4	517	390	907	260	208	74
20-5	562	390	952	260	208	76
20-6	607	390	997	260	208	82
20-7	652	390	1042	260	208	84
20-8	697	390	1087	260	208	101
20-10	875	500	1375	330	255	157
20-12	965	500	1465	330	255	170
20-14	1055	500	1555	330	255	172
20-17	1190	550	1740	330	255	195

Performance Table

Model	Associated motor(kW)	Q (m^3/h)	10	12	14	16	18	20	22	24	26	28
20-1	1.1	H (m)	13.5	13	12.5	12	11	10	9	8	7	6
20-2	2.2		27	26.5	26	25	24	23	22	20	18	15
20-3	4.0		40	39.5	39	38	37	35	33	30	27	24
20-4	5.5		54	53	52	51	49	47	44	41	37	33
20-5	5.5		67	66	64	62	60	58	55	50	45	40
20-6	7.5		81	79	77	75	73	70	66	61	55	49
20-7	7.5		95	93	91	89	86	82	77	71	65	58
20-8	9.2		109	107	105	102	99	94	89	82	75	67
20-10	11		136	134	131	128	124	118	111	103	95	85
20-12	15		164	162	158	154	149	142	133	124	114	102
20-14	15		192	189	185	180	174	166	156	145	133	119
20-17	18.5		234	230	225	219	212	202	190	177	162	145

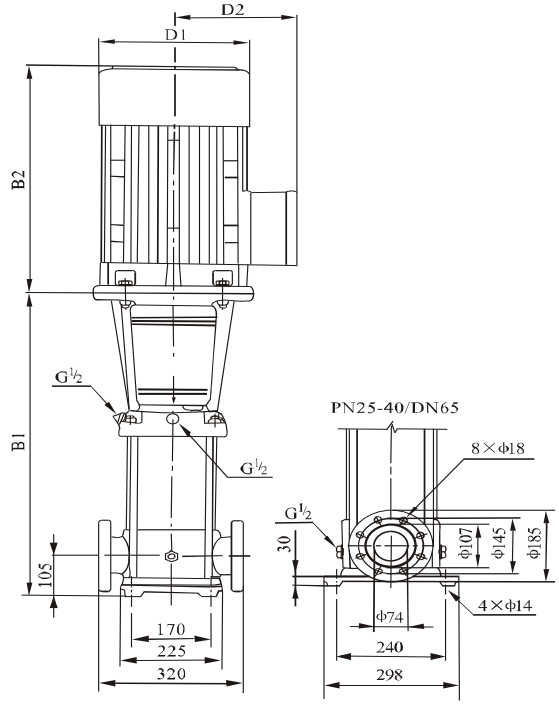
Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range



The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



Model	Size (mm)					Weight (kg)
	B1	B2	B1+B2	D1	D2	
32-1 -1/ 32-1	505	290	795	190	155	64/68
32-2 -2/ 32-2	575	345/355	920/930	197/230	165/180	77/85
32-3 -2/ 32-3	645	390	1035	260	208	100
32-4 -2/ 32-4	715	390	1105	260	208	109
32-5 -2/ 32-5	785	390	1175	260	208	125
32-6 -2/ 32-6	960	500	1460	330	255	185
32-7 -2/ 32-7	1030	500	1530	330	255	199
32-8 -2/ 32-8	1100	500	1600	330	255	203
32-9 -2/ 32-9	1170	550	1720	330	255	222
32-10 -2/ 32-10	1240	550	1790	330	255	227
32-11 -2/ 32-11	1310	575	1885	360	285	272
32-12 -2/ 32-12	1380	575	1955	360	285	276
32-13 -2/ 32-13	1450	575	2025	360	285	293
32-14 -2/ 32-14	1520	575/650	2095/2170	360/400	285/310	298/341
32-15 -2/ 32-15	1590	650	2240	400	310	345
32-16 -2/ 32-16	1660	650	2310	400	310	350

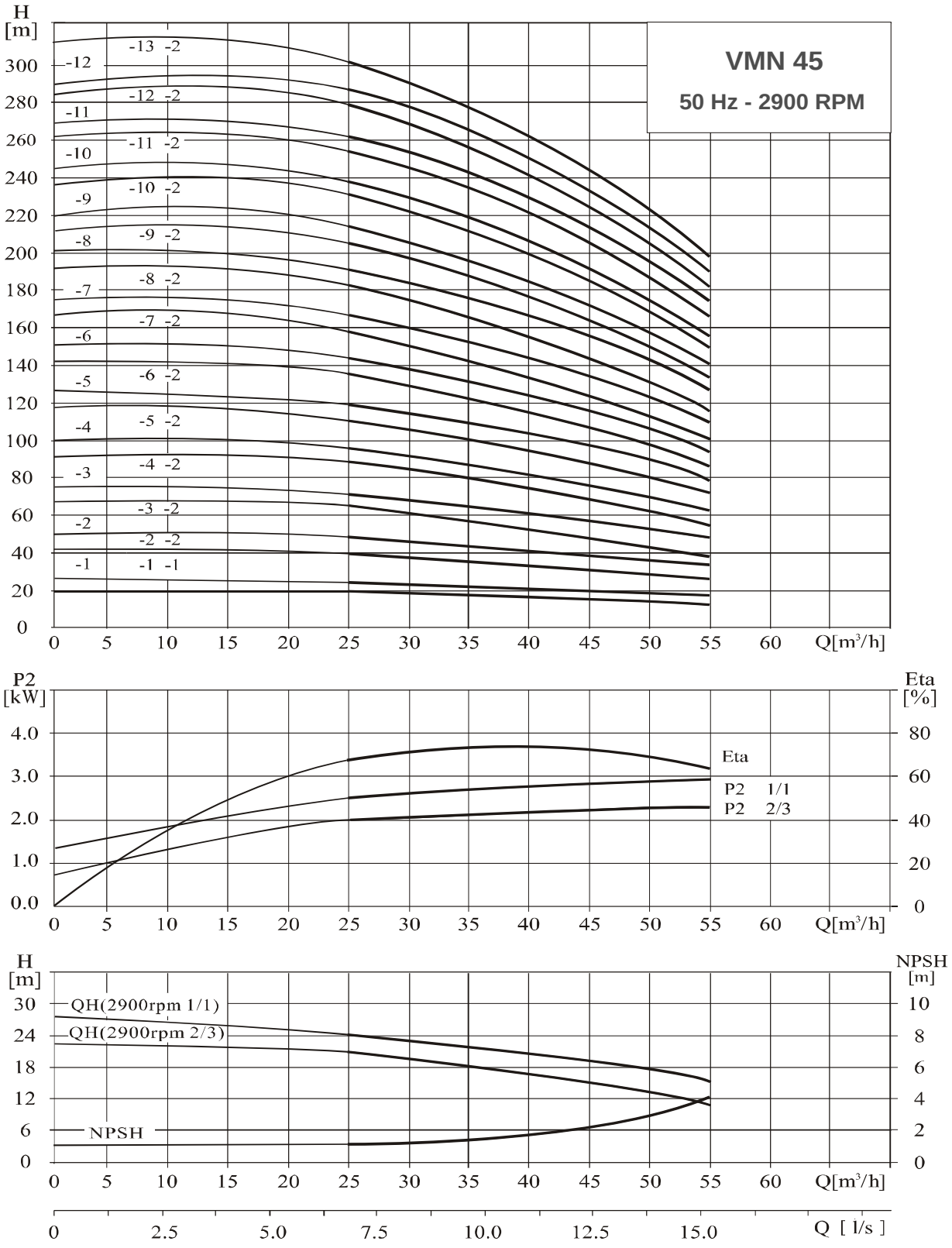
Performance Table

Model	Associated motor(kW)	Q (m^3/ h)	16	20	24	28	32	36	40
32-1 -1	1.5	H (m)	14	13	12	11	9	7	4
32-1	2.2		18	17	15	14	13	11	8
32-2 -2	3.0		29	28	26	23	20	16	11
32-2	4.0		36	34	32	29	27	23	18
32-3 -2	5.5		47	44	41	38	33	28	21
32-3	5.5		54	51	48	44	40	35	27
32-4 -2	7.5		65	62	58	53	46	40	30
32-4	7.5		72	69	65	59	53	47	37
32-5 -2	9.2		83	79	74	68	60	52	41
32-5	9.2		90	86	81	74	67	59	47
32-6 -2	11		101	97	90	83	74	65	51
32-6	11		108	104	97	90	81	72	57
32-7 -2	15		119	114	107	98	88	78	60
32-7	15		126	121	113	105	95	85	67
32-8 -2	15		136	131	123	114	102	90	71
32-8	15		144	138	130	120	109	97	77

Model	Associated motor(kW)	Q (m^3/ h)	16	20	24	28	32	36	40
32-9 -2	18.5	H (m)	154	148	140	129	117	102	82
32-9	18.5		162	156	147	136	124	109	88
32-10 -2	18.5		175	166	157	146	131	115	91
32-10	18.5		182	173	164	152	138	122	98
32-11 -2	22		193	184	173	164	146	128	102
32-11	22		200	191	180	168	153	135	109
32-12 -2	22		211	201	189	178	160	140	113
32-12	22		218	208	196	184	167	147	120
32-13 -2	26		230	218	206	193	174	153	124
32-13	26		237	225	213	200	181	160	131
32-14 -2	26		247	235	222	210	189	165	135
32-14	30		255	242	229	216	196	172	142
32-15 -2	30		266	253	239	224	203	178	145
32-15	30		274	260	246	231	210	185	152
32-16 -2	30		284	270	255	240	218	190	156
32-16	30		292	277	262	246	225	197	163

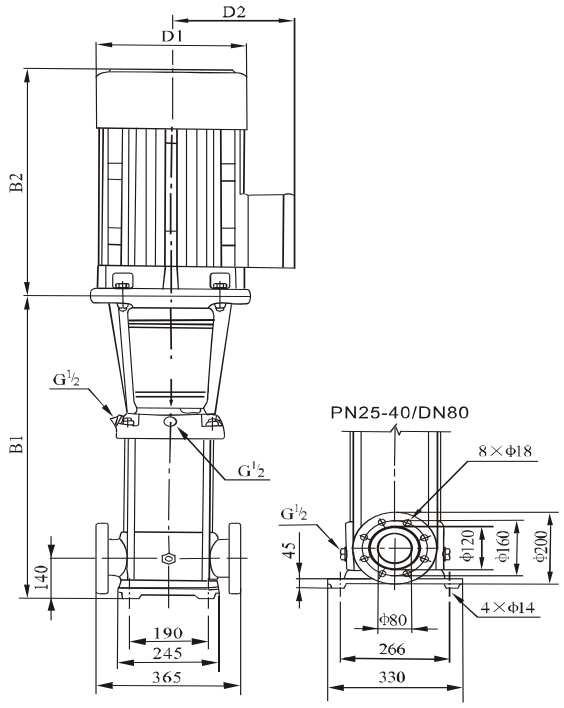
Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range



The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



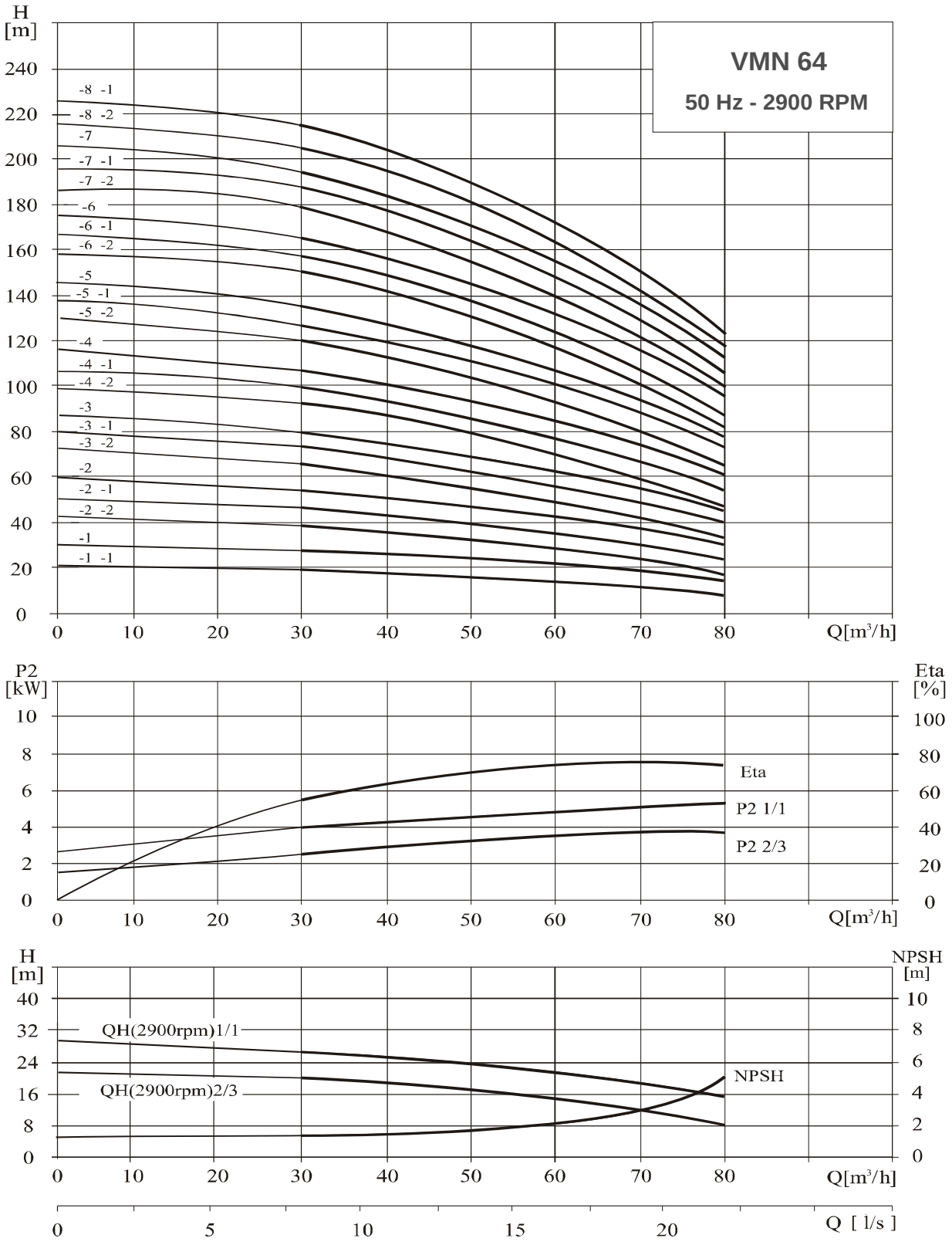
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
45-1 -1	561	345/355	906/916	197/230	165/188	83/90
45-1						
45-2 -2	641	390	1031	260	208	105/110
45-2						
45-3 -2	721/826	390/500	1111/1326	260/330	208/255	127/183
45-3						
45-4 -2	906	500	1406	330	255	197
45-4						
45-5 -2	986	550	1536	330	255	221
45-5						
45-6 -2	1066	575	1641	360	285	261
45-6						
45-7 -2	1146	575	1721	360	285	288
45-7						
45-8 -2	1226	650	1876	400	310	324
45-8						
45-9 -2	1306	650	1956	400	310	328/352
45-9						
45-10 -2	1386	650	2036	400	310	355
45-10						
45-11 -2	1466	685	2151	450	345	426
45-11						
45-12 -2	1546	685	2231	450	345	432
45-12						
45-13 -2	1626	685	2311	450	345	438

Performance Table

Model	Associated motor(kW)	Q (m^3/h)	25	30	35	40	45	50	55
45-1 -1	3.0		20	19	18	17	15	13	11
45-1	4.0		24	23	22	21	19	18	16
45-2 -2	5.5		40	38	36	33	30	27	23
45-2	7.5		48	46	44	42	39	35	31
45-3 -2	9.2		63	61	58	54	50	44	38
45-3	11		71	69	66	63	58	53	47
45-4 -2	15		87	84	80	75	69	62	54
45-4	15		95	92	88	84	78	71	62
45-5 -2	18.5		111	107	102	96	88	80	69
45-5	18.5	H	119	115	110	105	97	88	78
45-6 -2	22	(m)	135	130	124	117	108	97	85
45-6	22		143	138	132	125	116	106	93
45-7 -2	26		158	152	146	138	127	115	100
45-7	26		166	161	154	146	135	124	109
45-8 -2	30		182	175	168	159	146	133	116
45-8	30		190	184	176	167	154	141	124
45-9 -2	30		205	198	190	180	166	150	132
45-9	37		214	207	198	188	174	159	140
45-10 -2	37		230	221	212	200	185	168	147
45-10	37		238	230	220	209	193	177	155
45-11 -2	45		255	246	236	223	206	188	165
45-11	45		263	255	244	232	214	196	173
45-12 -2	45		280	270	259	245	226	206	181
45-12	45		289	280	268	255	236	216	190
45-13 -2	45		305	294	282	267	247	225	198

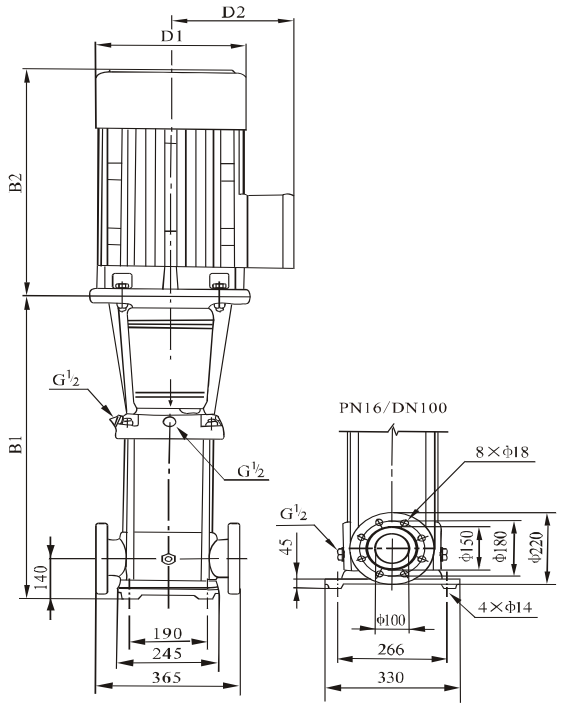
Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range



The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



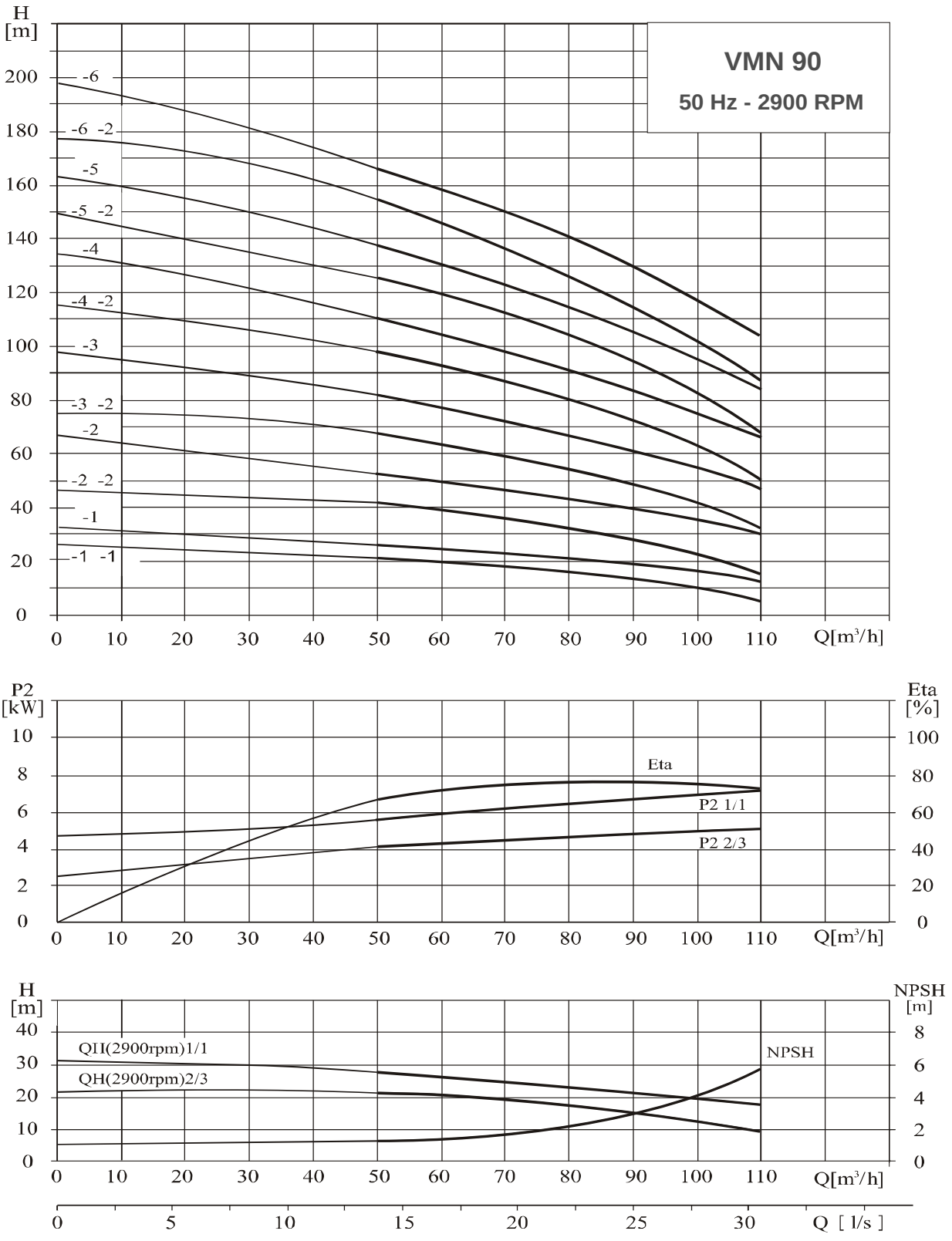
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
64-1 -1	561	355	916	230	188	93
64-1	561	390	951	260	208	105
64-2 -2	644	390	1034	260	208	110
64-2 -1	754	500	1254	330	255	182
64-2	754	500	1254	330	255	182
64-3 -2	836	500	1336	330	255	196
64-3 -1	836	500	1336	330	255	197
64-3	836	550	1386	330	255	221
64-4 -2	919	550	1469	330	255	225
64-4 -1	919	575	1494	360	285	258
64-4	919	575	1494	360	285	258
64-5 -2	1001	575	1576	360	285	276
64-5 -1	1001	575	1576	360	285	276
64-5	1001	650	1651	400	310	320
64-6 -2	1084	650	1734	400	310	325
64-6 -1	1084	650	1734	400	310	349
64-6	1084	650	1734	400	310	349
64-7 -2	1166	650	1816	400	310	353
64-7 -1	1166	650	1816	400	310	353
64-7	1166	685	1851	460	340	420
64-8 -2	1248	685	1933	460	340	424
64-8 -1	1248	685	1933	460	340	424

Performance Table

Model	Associated motor(kW)	Q (m^3/h)	30	40	50	60	64	70	80
64-1 -1	4.0	H (m)	19	18	16	14	13	11	8
64-1	5.5		27	25	23	21	20	18	15
64-2 -2	7.5		39	36	33	29	27	23	17
64-2 -1	11		46	44	40	36	34	30	24
64-2	11		53	51	47	43	41	37	30
64-3 -2	15		66	62	56	50	47	41	32
64-3 -1	15		73	69	63	57	54	48	39
64-3	18.5		80	76	70	64	61	55	46
64-4 -2	18.5		92	87	80	71	67	60	47
64-4 -1	22		100	94	87	78	74	67	54
64-4	22		107	101	94	85	81	74	61
64-5 -2	26		121	114	105	95	89	80	64
64-5 -1	26		128	121	112	102	96	87	71
64-5	30		136	129	119	109	103	94	78
64-6 -2	30		150	142	131	118	111	101	81
64-6 -1	37		157	149	138	125	118	108	88
64-6	37		164	156	145	132	125	115	95
64-7 -2	37		179	169	156	141	133	121	99
64-7 -1	37		186	176	163	148	141	128	106
64-7	45		193	183	170	155	148	135	112
64-8 -2	45		207	196	182	164	156	142	116
64-8 -1	45		215	203	189	171	163	149	123

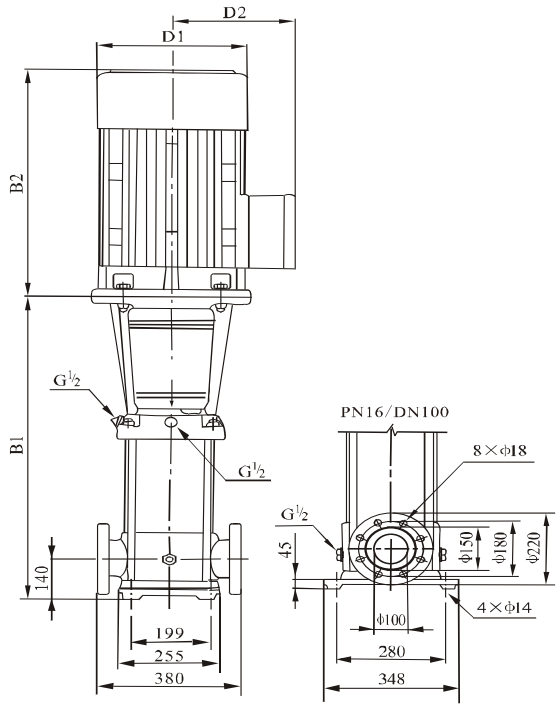
Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range



The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



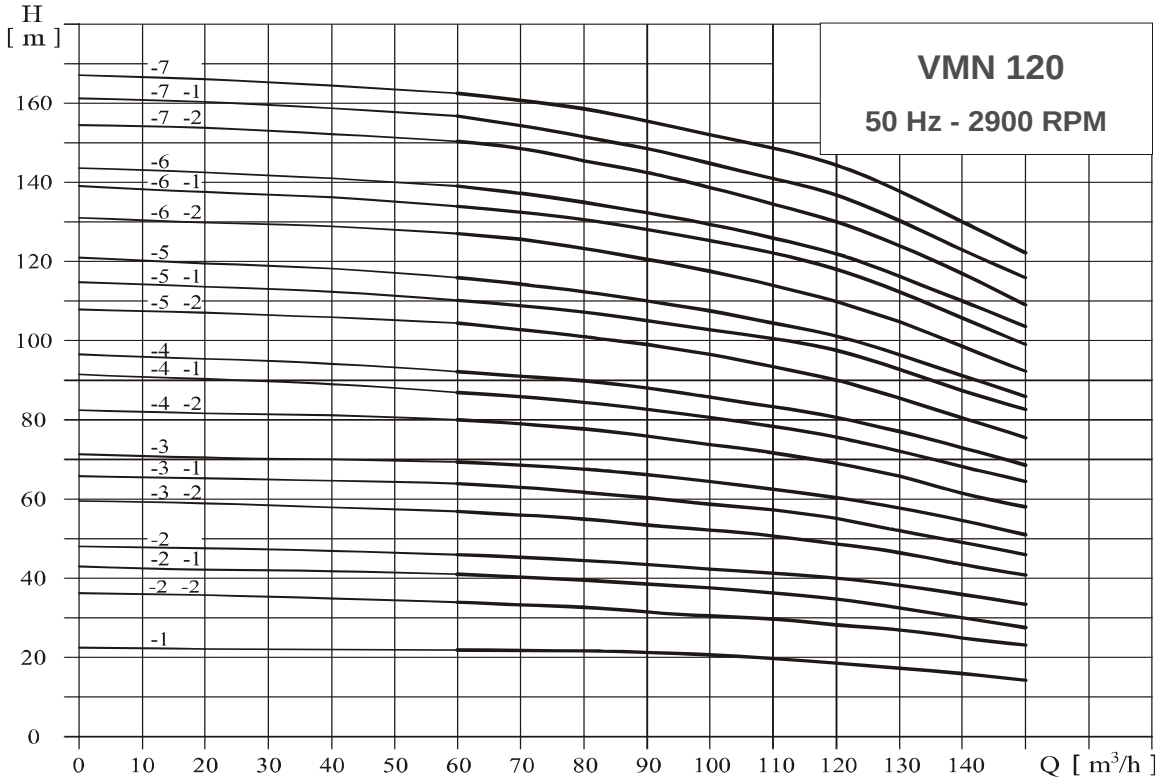
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
90-1 -1	571	390	961	260	208	105
90-1	571	390	961	260	208	110
90-2 -2	773	500	1273	330	255	181
90-2	773	500	1273	330	255	192
90-3 -2	865	550	1415	330	255	215
90-3	865	575	1440	360	285	252
90-4 -2	957	575	1532	360	285	271
90-4	957	650	1607	400	310	312
90-5 -2	1049	650	1699	400	310	336
90-5	1049	650	1699	400	310	336
90-6 -2	1141	685	1826	460	340	407
90-6	1141	685	1826	460	340	407

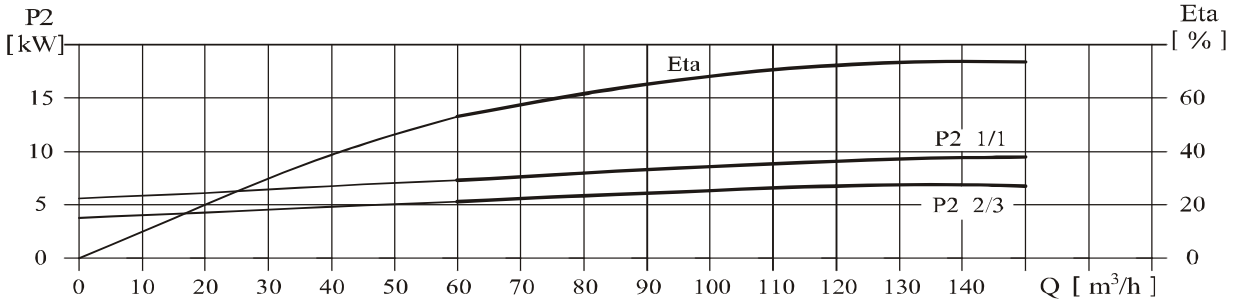
Performance Table

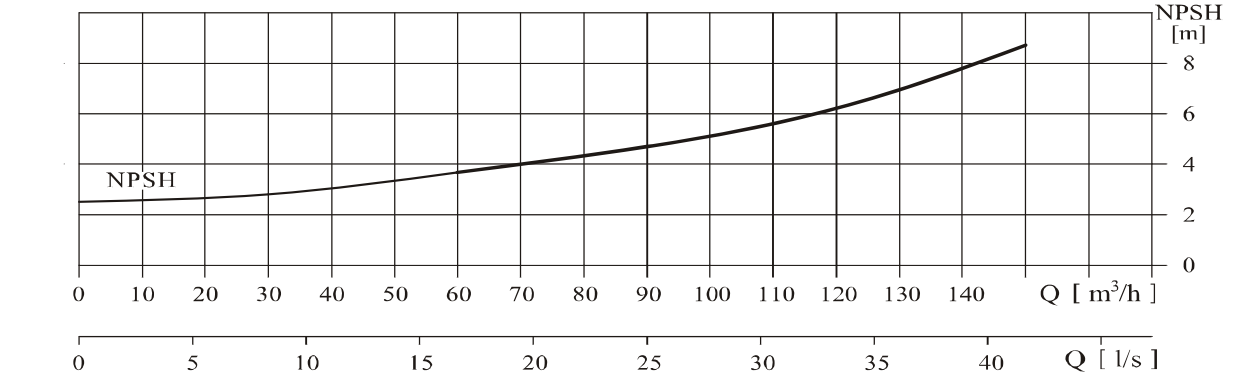
Model	Associated motor(kW)	Q (m^3/h)	50	60	70	80	90	100	110
90-1 -1	5.5	H (m)	22	19	17	16	13	10	6
90-1	7.5		25	24	22	21	19	16	12
90-2 -2	11		41	39	36	32	28	22	15
90-2	15		53	50	47	44	40	36	30
90-3 -2	18.5		68	65	60	55	49	41	32
90-3	22		81	77	72	67	62	55	48
90-4 -2	26		98	93	87	80	72	62	50
90-4	30		110	105	100	92	84	76	66
90-5 -2	37		126	120	113	104	93	81	68
90-5	37		139	131	124	115	106	94	83
90-6 -2	45		155	148	139	129	117	102	86
90-6	45		168	160	150	141	130	117	103

Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range

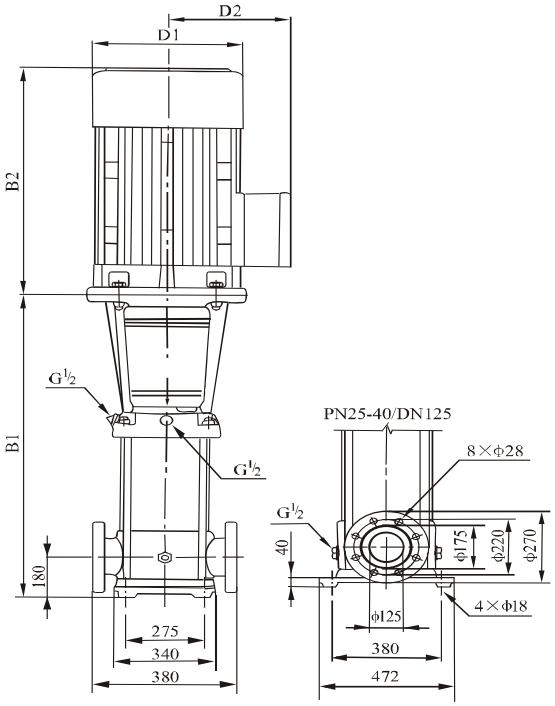






The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



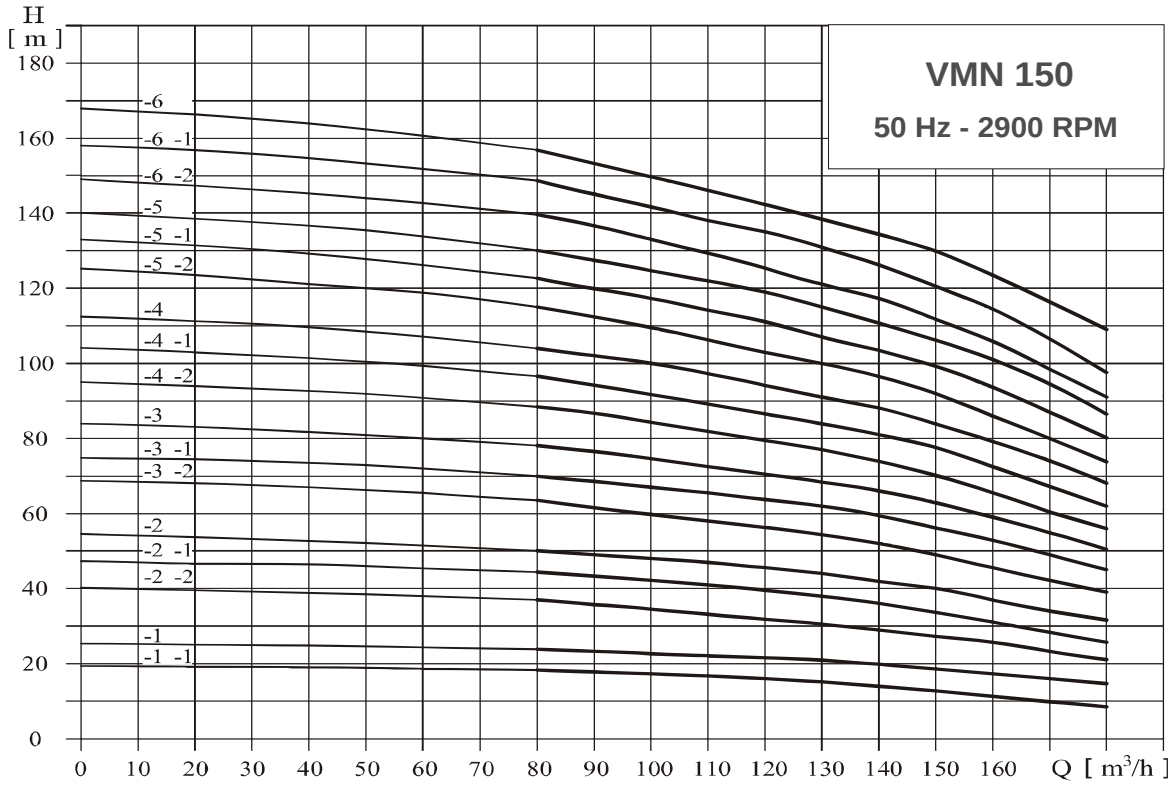
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
120-1	840	500	1340	330	255	230
120-2 -2	1000	500	1500	330	255	245
120-2 -1	1000	550	1550	330	255	250
120-2	1000	575	1575	360	285	285
120-3 -2	1160	575	1735	360	285	326
120-3 -1	1160	650	1810	400	310	360
120-3	1160	650	1810	400	310	360
120-4 -2	1320	650	1970	400	310	400
120-4 -1	1320	650	1970	400	310	400
120-4	1320	685	2005	460	340	460
120-5 -2	1480	685	2165	460	340	470
120-5 -1	1480	685	2165	460	340	470
120-5	1510	760	2270	540	370	575
120-6 -2	1670	760	2430	540	370	585
120-6 -1	1670	760	2430	540	370	585
120-6	1830	845	2515	580	410	705
120-7 -2	1830	845	2675	580	410	715
120-7 -1	1830	845	2675	580	410	715
120-7	1830	845	2675	580	410	715

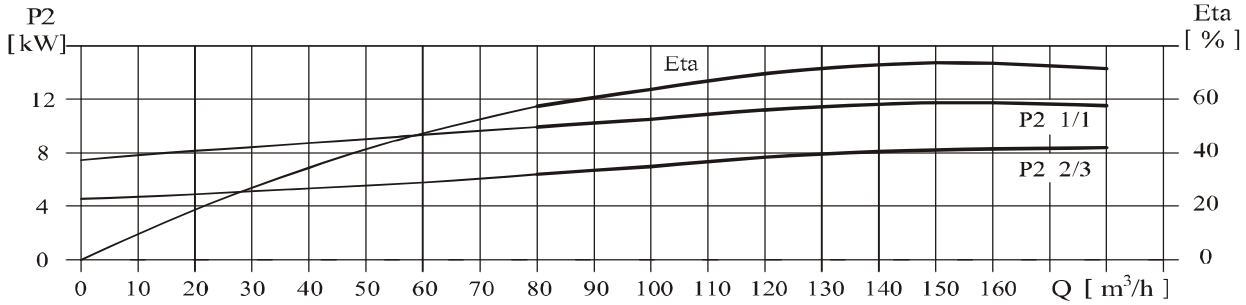
Performance Table

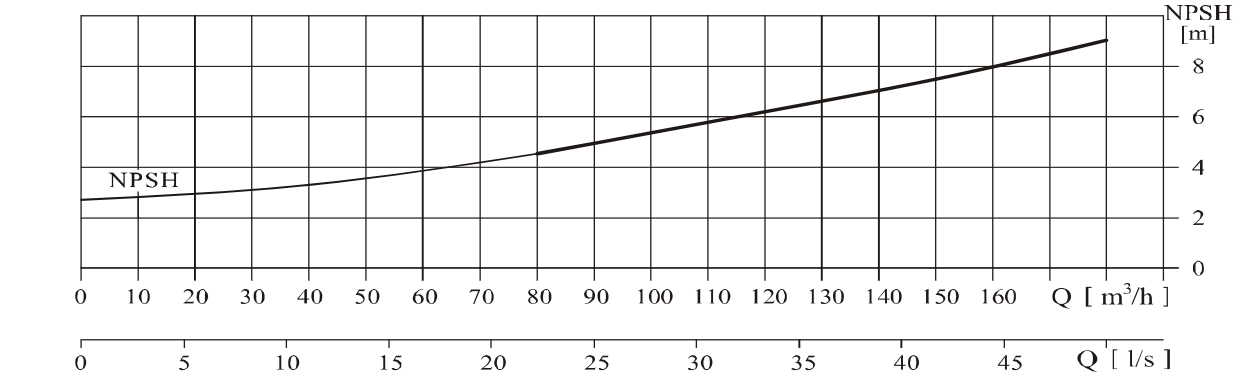
Model	Associated motor(kW)	Q (m^3/h)	60	70	80	90	100	110	120	130	140	150
120-1	11	H (m)	22	21.8	21.6	21	20.5	19.5	18.5	17	16	15
120-2 -2	15		34	33.6	33	31	30.2	30	28.5	27	25	24
120-2 -1	18.5		41	40	39.5	38.5	37	36.5	34.5	32.5	30	27.5
120-2	22		46	45	44.5	43.5	42.4	41	40	38	36	33.5
120-3 -2	26		57	56	55	53.5	52	51	49	46.5	43.5	41
120-3 -1	30		64	63	62	60	58.5	57.5	55.5	52	49	46
120-3	30		69.5	68.5	67.5	66	64.4	62.5	61	57.5	54.5	51
120-4 -2	37		80.5	79	78	76	73.5	72	69	66	61.5	58
120-4 -1	37		87	86	84.5	82	80	78	76	72	68	64.5
120-4	45		92.5	91	90	88	85.5	83	81	77	73	68.5
120-5 -2	45		104.5	103	101	99	96	93	90	85.5	80.5	75.5
120-5 -1	45		110.5	109	107.5	105	102	100	97	92	86.5	83
120-5	55		115.5	114	113	110	107.5	104.5	101.5	96	91	86
120-6 -2	55		128	125.5	123	121	117.3	113.5	110	104.5	98.5	92.5
120-6 -1	55		134	132	130.5	127	124	121	118	111	105	100
120-6	75		139	137	135	132	128.8	126	123	116	110	104
120-7 -2	75		151	148	145.5	143	138.6	134	130	123.5	116.5	109
120-7 -1	75		156.5	154	152	148.5	144.5	141	137.5	130	123	116.5
120-7	75		162.5	160.5	158.5	155	151	148	145	137	129	123

Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range

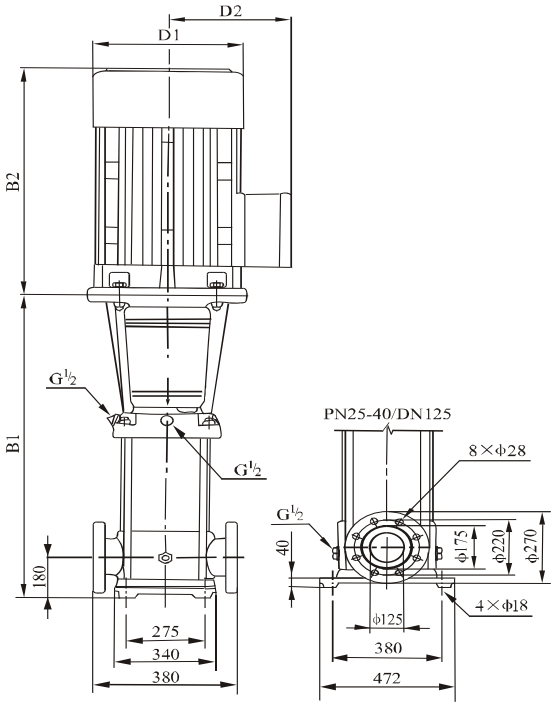






The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



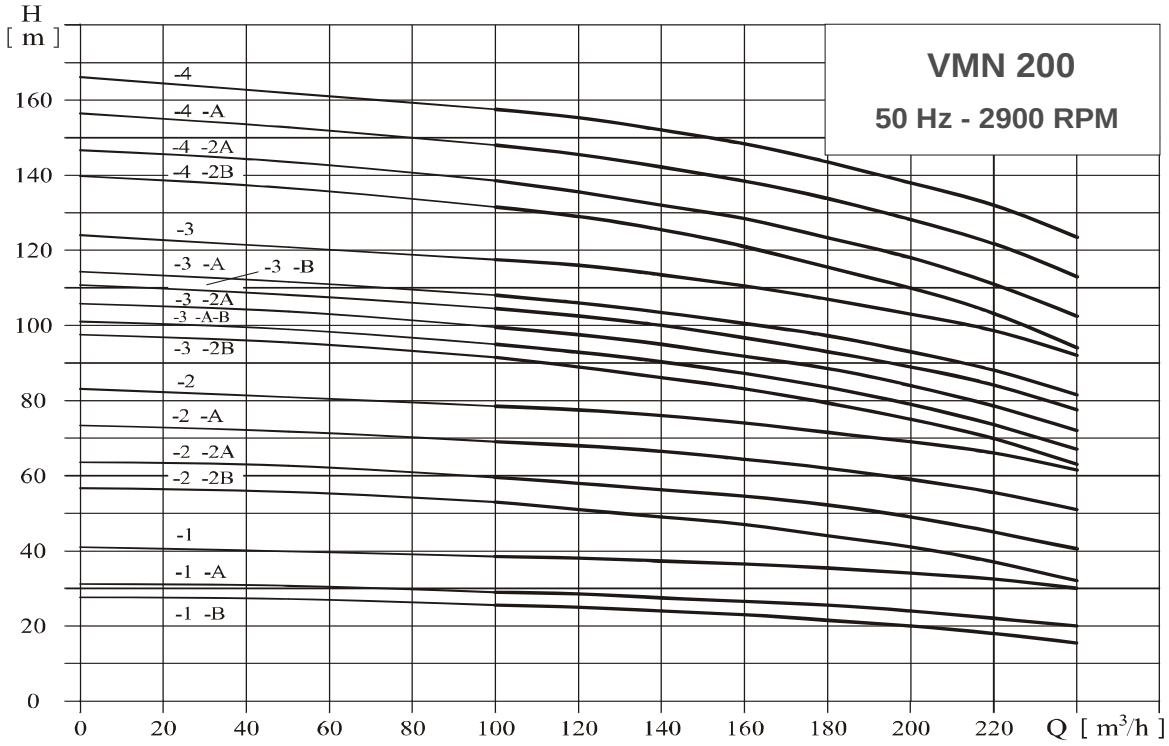
Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
150-1 -1	840	500	1340	330	255	230
150-1	840	500	1340	330	255	235
150-2 -2	1000	550	1550	330	255	250
150-2 -1	1000	575	1575	360	285	295
150-2	1000	575	1575	360	285	317
150-3 -2	1160	650	1810	400	310	360
150-3 -1	1160	650	1810	400	310	360
150-3	1160	650	1810	400	310	385
150-4 -2	1320	685	2005	460	340	460
150-4 -1	1320	685	2005	460	340	460
150-4	1350	760	2110	540	370	560
150-5 -2	1510	760	2270	540	370	570
150-5 -1	1510	845	2355	580	410	690
150-5	1510	845	2355	580	410	690
150-6 -2	1670	845	2515	580	410	700
150-6 -1	1670	845	2515	580	410	700
150-6	1670	845	2515	580	410	700

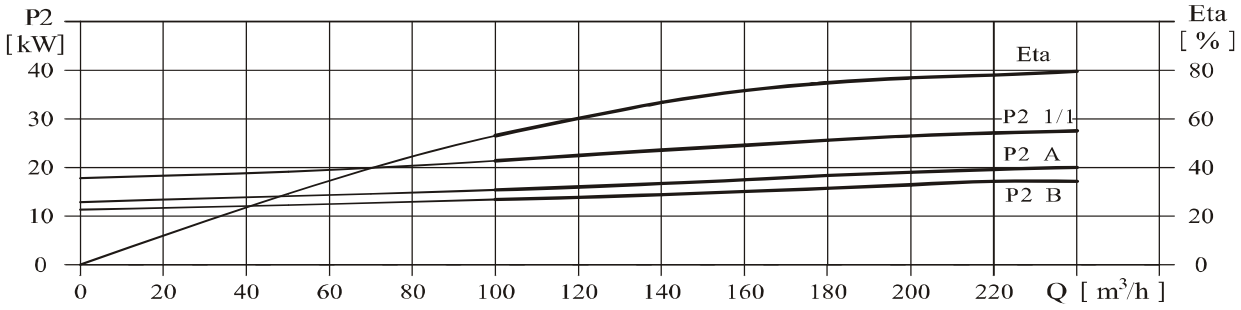
Performance Table

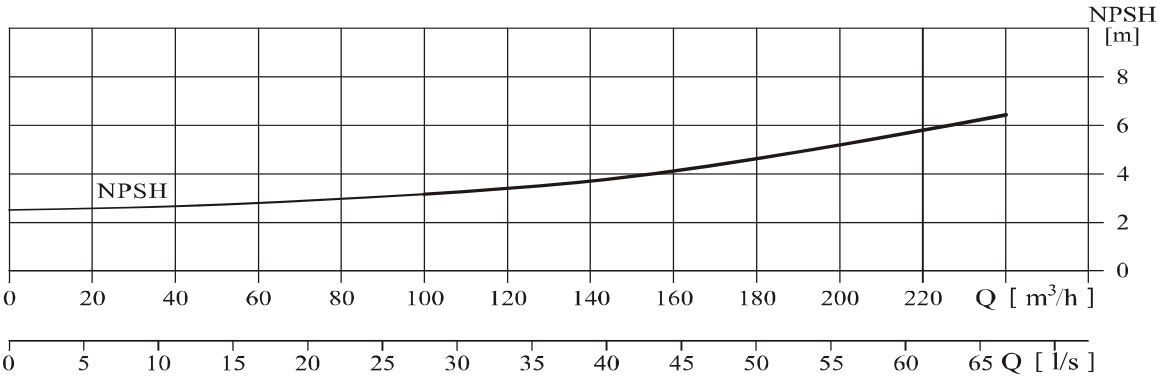
Model	Associated motor(kW)	Q (m^3/h)	80	90	100	110	120	130	140	150	160	170	180
150-1 -1	11	H (m)	18.3	17.8	17.3	17	16	15	14	12.5	11	10	8.5
150-1	15		24	23	22.5	22	21.5	20.5	20	18.5	17	16	15
150-2 -2	18.5		37	35.5	34	33	32	31	29	27.5	26	23	21
150-2 -1	22		44.3	43	42	40	39	38.5	37.5	35	33	30	27
150-2	26		50	49	48	47	45.5	44	42	40	37	34	32
150-3 -2	30		63.5	61	59	57.5	56	54.5	53	49	45.5	42	39
150-3 -1	37		70	68	67	65	63	62	60	56	53	49	45
150-3	37		78	76.5	75	73	70.5	68	66	63	59	55	50.5
150-4 -2	45		89	87	84	81.5	79	77	74.5	70.5	65.5	60	56
150-4 -1	45		96.5	94	91.5	89	86.5	84	81.5	77	72.5	67	62
150-4	55		104	102	100	97	95	91	88	84	79.5	74	68
150-5 -2	55		115.5	112	109	106	102.5	100	97	92	86	79	73.5
150-5 -1	75		122.5	119.5	117	113.5	111.5	107.5	104.5	99	93.5	87	80
150-5	75		130	127.5	125	121	119	115	111.5	106.5	101	94.5	86.5
150-6 -2	75		140	137	133	130	126	121	118	112	106	98	91
150-6 -1	75		148.5	145	141.7	137.5	135	131	127	120.5	114.5	106.5	97.5
150-6	75		157	153	149	145	142	139.5	137	130	123.5	116	109

Size and appearance of Single phase motors, explosion-proof motor are different, please contact our company.

Performance Range

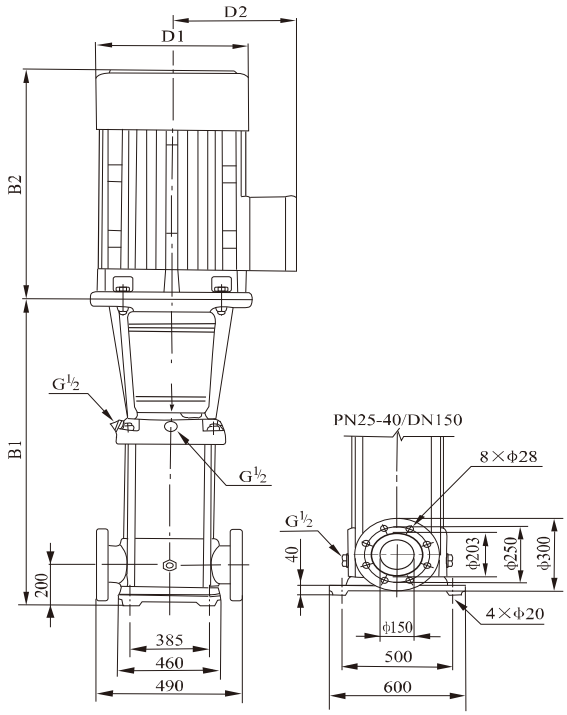






The characteristic curves were obtained with deaerated water at a temperature of 20 deg C, a viscosity of 1 cP and a density of 1000 kg/m3. The efficiency of pump with undersize impeller is lower 2% than the curve value. The power curves show the power input of each stage of the pump, curves are show for normal impeller (P2n) and undersize impeller (P2s). Tolerances to ISO9906 class 3B; below 10kW acc. to paragraph 4.4.2, whereby only flow and head are guaranteed. The NPSH curve are minimum values corresponding to the cavitation limit; a safety allowance of at least 0.5 m must be added when selecting the pump.

Outline Drawing



Model	Size (mm)					Weight(kg)
	B1	B2	B1+B2	D1	D2	
200-1 -B	907	550	1457	330	255	311
200-1 -A	907	575	1482	360	285	347
200-1	907	650	1557	400	310	403
200-2 -2B	1101	650	1751	400	310	447
200-2 -2A	1101	685	1786	460	340	504
200-2 -A	1131	760	1891	540	370	595
200-2	1131	760	1891	540	370	595
200-3 -2B	1325	845	2170	580	410	748
200-3 -A-B	1325	845	2170	580	410	748
200-3 -2A	1325	845	2170	580	410	748
200-3 -B	1325	845	2170	580	410	748
200-3 -A	1325	845	2170	580	410	748
200-3	1325	895	2220	580	410	817
200-4 -2B	1519	895	2414	580	410	830
200-4 -2A	1519	1140	2659	645	550	1180
200-4 -A	1519	1140	2659	645	550	1180
200-4	1519	1140	2659	645	550	1180

Performance Table

Model	Associated motor(kW)	Q (m^3/h)	100	120	140	160	180	200	220	240
200-1 -B	18.5	H (m)	25.5	25	24	23	21.5	20	18	15.5
200-1 -A	22		29	28.5	27.5	26.5	25.5	24	22	20
200-1	30		38.5	38	37.5	36.5	35	34	32.5	30
200-2 -2B	37		53	51	49	47	44	41	37	32
200-2 -2A	45		59.5	58	56	54	52.5	49	44.5	40.5
200-2 -A	55		69	68	66	64	62	59	55.5	51
200-2	55		78.5	77.5	76	74	71.5	69	66	61.5
200-3 -2B	75		91.5	89	86.5	83.5	79	75	70	63
200-3 -A-B	75		95	93	90	87	83.5	79	73.5	67
200-3 -2A	75		99.5	97.5	94.5	91.5	89	84	78.5	72
200-3 -B	75		104.5	102.5	100	97	93	89	84.5	77.5
200-3 -A	75		108	106	103.5	100.5	97.5	93	88	81.5
200-3	90		117.5	116	113.5	110.5	107	103	99	92
200-4 -2B	90		131.5	129	125.5	121	115.5	110	103.5	94
200-4 -2A	110		138.5	136	132	128	124	118	111	102.5
200-4 -A	110		148	145.5	142.5	138	134	128	122	113
200-4	110		157.5	155.5	152.5	148	143.5	138	132.5	123.5

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