

STAINLESS PUMP บิมนน้ำเอนตัจ (สลิคเอนเอส)

VERTICAL MULTI-STAGE CENTRIFUGAL PUMP



 **VML**

GENERAL INTRODUCTION

บทนำ

VML Series is a kind of non self-priming stainless steel vertical multistage centrifugal pump, which adopts classical vertical IEC standard electric motor and assembly cartridge mechanical seal. It possesses many advantages, such as small volume, high head, light weight, low noise, easy maintenance, appearance, etc. VML Series are widely used in the areas of daily life, industry, agriculture, water treatment system, and so on.

VML เป็นปั๊มหลายขั้วสเตนเลสติดตั้งแนวตั้งชนิดหลายใบพัด ซึ่งขับเคลื่อนด้วยมอเตอร์มาตรฐาน IEC และมีคานาคอลซิลชนิดตลับ ทำให้ง่ายต่อการเปลี่ยนบำรุงรักษามอเตอร์ และมีคานาคอลซิล ปั๊มชนิดนี้มีจุดเด่นมากมาย เช่น ขนาดเล็ก ใช้น้ำน้อยในการติดตั้ง ได้แรงดันสูงที่ปริมาณน้ำน้อย น้ำหนักเบา เสียงเบา บำรุงรักษาง่าย และมีรูปลักษณ์ที่สวยงาม การใช้หลากหลายในงานต่าง ๆ ตั้งแต่ต่างตึกสูง งานอุตสาหกรรม งานเกษตรกรรม ระบบกรองน้ำ (R.O) ระบบออยเลอร์ และอื่น ๆ

FEATURES / คุณสมบัติพิเศษ

PUMPS / ปั๊ม

- * Vertical and compact structure, the inlet and outlet flanges are located at same central line, small area occupation and easy installation.
เป็นกระจัดระดิมแนวตั้ง มีคานาเปลี่ยนทางเข้าและทางออกอยู่ในเส้นตรงแนวเดียวกัน ใช้น้ำน้อย การติดตั้งและบำรุงรักษาง่าย
- * Assembly cartridge mechanical seal, making installation and maintenance safer and more convenient, and guaranteeing the reliability of the mechanical seal.
ใช้มีคานาคอลซิลชนิดตลับ ทำให้ง่ายและบำรุงรักษาง่าย และปลอดภัย และช่วยยืดอายุการใช้งานของมีคานาคอลซิล
- * Flow parts are made of stainless steel, which will not contaminate medium and possess lengthy service life and elegant appearance.
ชิ้นส่วนที่สัมผัสกับน้ำทำด้วยสเตนเลส ทำให้ไม่มีปัญหาการปนเปื้อน และทำให้มีอายุการใช้งานที่ยาวนาน และมีรูปร่างสวยงาม
- * Electric motor shaft directly and accurately connects with pump shaft through coupling.
เพลามอเตอร์ขับโดยตรงอย่างแม่นยำที่เพลาน้ำโดยมีประกับเพลาคู่ที่แข็งแรงและมั่นคง
- * Lower noise and less vibration
เสียงเบาและลดการสั่นสะเทือน
- * Standardized design and outstanding universality.
ชิ้นส่วนปั๊มที่มีมาตรฐานสูงและมีความเป็นสากลทำให้เกิดความคล่องตัวสูง
- * Optional material SUS316 is available.
มีวัสดุ SUS316 ให้เลือกตามความต้องการ



ELECTRIC MOTOR : มอเตอร์ไฟฟ้า

- * Protection Class: IP55 - ระดับการกันฝุ่นประเภท : IP55
- * Insulation Class: F - ระดับของความร้อนประเภท : F
- * Working Mode: SI - โหมดการทำงานประเภท : S1

PERFORMANCE CHART 50Hz : แผนภูมิการทำงานของปั๊ม 50Hz

MODEL EXPLANATION : คำอธิบายชื่อรุ่น

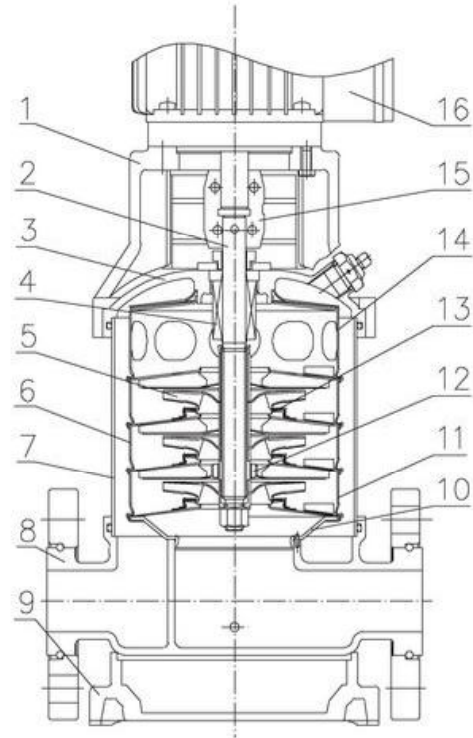
VML-2-110 M

- M = Single phase** : มอเตอร์ 1 เฟส
- T = Three phase** : มอเตอร์ 3 เฟส
- Number of stage x 10** : จำนวนชั้นใบพัด x 10
- Nominal flow rate (m³/hr)** : อัตราการไหลของน้ำ (คิว/ชั่วโมง)
- Stainless steel 304 vertical multi-stage pump** : ปั๊มน้ำสแตนเลส 304 ชนิดหลายใบพัดแนวตั้ง

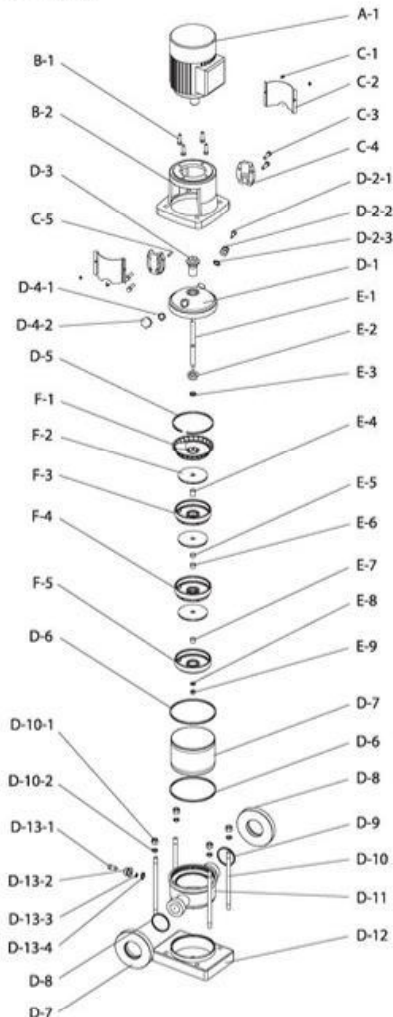
NO	NAME	MATERIALS
1	Motor base	Cast iron
2	Pump shaft	Stainless steel DIN1.4301
3	Mechanical seal bed	Stainless steel DIN1.4301
4	Mechanical seal	Subassembly
5	Impeller	Stainless steel DIN1.4301
6	Intermediate body	Stainless steel DIN1.4301
7	Cylinder	Stainless steel DIN1.4301
8	Inlet and outlet section	Stainless steel DIN1.4301
9	Pump base	Cast iron
10	Inlet intermediate body	Stainless steel DIN1.4301
11	Intermediate body with bearing	Stainless steel DIN1.4301
12	Sliding bearing	Tungsten carbide
13	Sealing ring	F-4
14	Outlet intermediate body	Stainless steel DIN1.4301
15	Coupling	GS-45
16	Electric motor	Subassembly

Due to constant technology development, we reserve the right to change specifications without prior notice.
เนื่องจากการพัฒนาเทคโนโลยีอย่างต่อเนื่อง เราขอสงวนสิทธิ์ในการเปลี่ยนแปลงข้อกำหนดโดยไม่ต้องแจ้งให้ทราบล่วงหน้า

STRUCTURE : โครงสร้าง

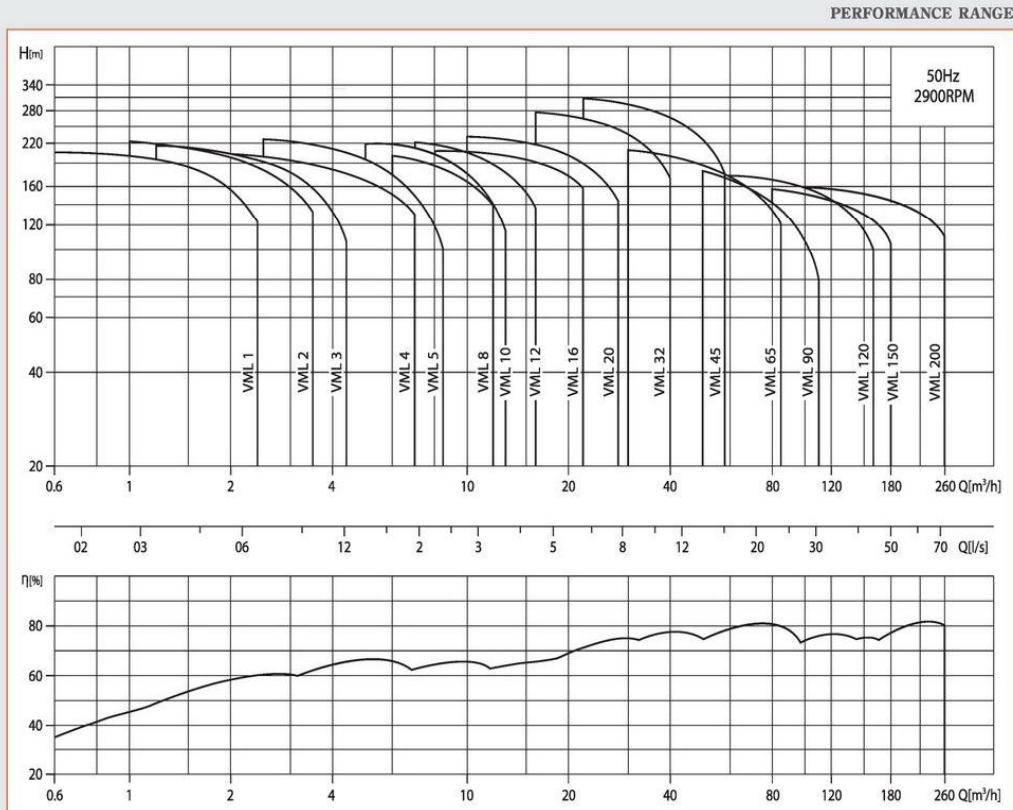


PARTS LIST



No.	COMPONENTS
A-1	Motor
B-1	Bolt
B-2	Motor base
C-1	Screw
C-2	Coupling cover
C-3	Screw
C-4	Coupling
C-5	Pin
D-1	Mechanical seal seat
D-2-1	Air vent screw
D-2-2	Air vent nut
D-2-3	O-Ring
D-3	Cartridge mechanical seal
D-4-1	O-Ring
D-4-2	Gag
D-5	Corrugated spring
D-6	O-Ring
D-7	Cylinder
D-8	Flange
D-9	Washer
D-10	Rod
D-10-1	Nut
D-10-2	Gasket
D-11	Inlet & Outlet section
D-12	Pump base
D-13-1	Drainage screw
D-13-2	Drainage nut
D-13-3	O-Ring
D-13-4	O-Ring
E-1	Pump shaft
E-2	Washer sleeve
E-3	Washer
E-4	Impeller sleeve
E-5	Short sleeve
E-6	Water bearing inner ring
E-7	First stage sleeve
E-8	Washer
E-9	Nut
F-1	Discharge stage
F-2	Impeller
F-3	Middle - stage
F-4	Middle - stage with bearing
F-5	Suction - stage

PERFORMANCE CHART 50Hz : แผนภูมิการทำงานของปั๊ม 50Hz



• Water treatment: reverse osmosis system, water treatment system of swimming pools.
- ระบบบำบัดน้ำกรองน้ำโรสมอน R.O. กรองน้ำของสระว่ายน้ำ

OPERATING CONDITIONS

เงื่อนไขการทำงาน

• Liquid temperature:

Normal type : -15°C up to +70°C

Special type : >70°C up to 120°C

- อุณหภูมิของน้ำ: ชนิดปกติ -15°C จนถึง +70°C
ชนิดพิเศษ >70°C จนถึง 120°C

• Clean, nonflammable and non-explosive medium without solid particles and fibers

- น้ำสะอาด ไม่ติดไฟ และไม่ระเบิด โดยไม่มีของแข็งเจือปนหรือเส้นใยใดๆ

• Mildly corrosive liquid without solid particles

- ของเหลวที่มีความกัดกร่อนเล็กน้อยแต่ไม่มีของแข็งเจือปน

APPLICATION

การใช้งาน

- **Ambient temperature: +40°C at most.** If the temperature is above +40°C or the electric motor is installed 1000 meters above sea level, the motor output power will reduce. In this case, more powerful motors are recommended.
- อุณหภูมิแวดล้อมไม่เกิน +40°C ถ้าหากว่าอุณหภูมิสูงกว่า +40°C หรือติดตั้งอยู่สูงกว่า 1000 เมตร จากระดับทะเล กำลังของมอเตอร์จะลดลง ฉะนั้นจะต้องใช้มอเตอร์ไฟฟ้าที่ใหญ่ขึ้น
- **Water supply: water transportation in water plants, boosting system in high-rise buildings, etc.**
- การส่งน้ำ ใช้ในการส่งน้ำในโรงกรองน้ำ และในการเพิ่มแรงดันน้ำในงานตึกสูงต่างๆ และการส่งน้ำทั่วไป
- **Industrial liquid conveying: air-condition system, boiler water supply and machine-associate purpose, etc.**
- การส่งน้ำในงานอุตสาหกรรม งานระบบปรับอากาศ งานปั๊มน้ำเข้าหม้อน้ำไอน้ำ และในงานที่เกี่ยวข้องกับระบบเครื่องจักรต่างๆ
- **Irrigation: farmland irrigation, spray irrigation and dripping irrigation.**
- การเกษตรกรรม งานสวนการเกษตร การชลประทาน การพ่นน้ำยาในการเกษตร และงานน้ำพิเศษในการทำสวนต่างๆ

Products : รุ่นสินค้า

Parameter	VML1	VML2	VML3	VML4	VML5	VML8	VML10	VML12	VML16	VML20	VML32	VML45	VML65	VML90	VML120	VML150	VML200
Rated Flow(m ³ /h)	1	2	3	4	5	8	10	12	16	20	32	45	65	90	120	150	200
Rated Flow(m ³ /h)	0.6~2.4	1~3.2	1.2~4.4	2~7	2.5~8.5	6~12	5~13	7~16	8~22	10~28	16~40	22~58	30~85	50~110	60~160	80~180	100~260
Max Head(m)	208	236	225	213	242	217	219	239	217	250	294	323	224	218	181	206	168
Electric power(kW)	0.37~2.2	0.37~3	0.37~3	0.37~4	0.37~5.5	0.75~7.5	0.37~7.5	1.5~11	2.2~15	1.1~18.5	1.5~30	3~45	4~45	5.5~45	11~75	11~75	18.5~110
Temperature Ranger(°C)	Normal type : -15°C up to +70°C Special type : >70°C up to 120°C																
Max Efficiency(%)	50	47.5	60	58	67.5	63	65.5	63	67.5	66	75	78	79	81.5	76.5	75	81.5
Flange	DN25	DN25	DN25	DN32	DN32	DN40	DN40	DN50	DN50	DN50	DN65	DN80	DN100	DN100	DN125	DN125	DN150

Max Working Pressure & Max Inlet Pressure
แรงดันส่งสูงสุด และแรงดันขาเข้าสูงสุด

Pump Model	Max Working Pressure (Bar)	Max Inlet Pressure (Bar)
VML1-20~360	25	10
VML2-20	25	6
VML2-30~110	25	10
VML2-120~260	25	15
VML3-20~290	25	10
VML3-300~260	25	15
VML4-20	25	6
VML4-30~100	25	10
VML4-110~220	25	15
VML5-20~160	25	10
VML5-170~360	25	15
VML8-20~60	25	6
VML8-70~200	25	10
VML10-10~60	25	8
VML10-70~220	25	10
VML12-20~40	25	6
VML12-50~180	25	10
VML16-20~30	16	6
VML16-40~100	16	10
VML16-110~160	25	10
VML20-10~30	16	6
VML20-40~100	16	10
VML20-110~170	25	10
VML32-10/1~20/2	16	3
VML32-20~40	16	4
VML32-50/2~70	16	10

Pump Model	Max Working Pressure (Bar)	Max Inlet Pressure (Bar)
VML32-80/2~10	25	10
VML32-110/2~120	25	15
VML32-130/2~160/2	30	15
VML45-10/1	16	3
VML45-10~20	16	4
VML45-30/2~50	16	10
VML45-60/2~90	25	15
VML45-100/2~130/2	33	15
VML65-10/1~20/2	16	4
VML65-20/1~40/2	16	10
VML65-40/1~50	16	15
VML65-60/2~80/1	25	15
VML90-10/1~10	16	4
VML90-20/2~30/2	16	10
VML90-30~40	16	15
VML90-50/2~60	25	15
VML120-10~20/1	25	4
VML120-20~50/1	25	10
VML120-60/1~70	25	15
VML150-10/1~10	25	4
VML150-20/1~40/2	25	10
VML150-50/2~60	25	15
VML200-10/B~10	25	4
VML200-20/2B~30/2B	25	10
VML200-30/2A~40	25	15

APPLICATIONS

การใช้งาน

MINIMUM INLET PRESSURE NPSH : แรงดันขาเข้าต่ำสุดที่จำเป็น

- หากแรงดันในปั๊มน้อยกว่าแรงดันไอน้ำจะก่อให้เกิดโพรงอากาศในน้ำภายในปั๊ม
- ฉะนั้นเพื่อป้องกันปัญหาของโพรงอากาศในน้ำ จำเป็นต้องให้มีแรงดันทางดูดสูงกว่า
- แรงดันขาเข้าต่ำสุดตลอดเวลา แรงดันสูงสุดของทางดูดสามารถคำนวณได้จากสูตรข้างล่างนี้

If the pressure in pump is lower than the steaming pressure, cavitations might occur. To avoid cavitations, a minimum pressure at the inlet side of the pump must be guaranteed. The maximum suction head can refer to the below figure and be calculated as the following formula:

$$H = P_b \times 10.2 - NPSH - H_f - H_v - H_s \text{ (m)}$$

P_b = atmosphere pressure (bar), the pressure can be set as 1 bar. In a closed system, P_b means system pressure (bar)

$NPSH$ = Net positive suction head (m), it can be read out from the point of possible max flow rate shown on NPSH curve

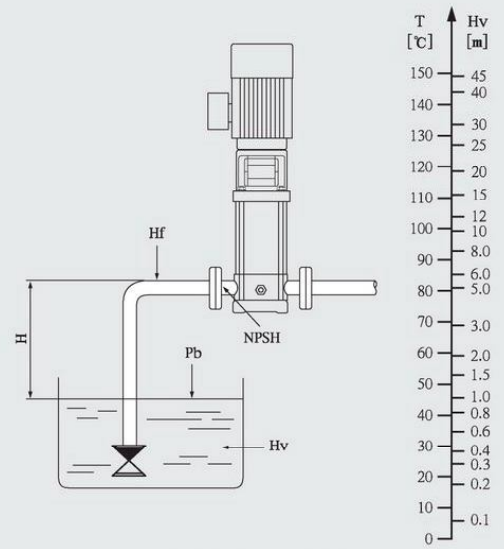
H_f = Pipeline loss at the inlet (m)

H_v = Steaming pressure (m)

H_s = Safety margin, it means minimum 0.5m delivery head

If the calculated result H is positive, the pump may run under the max suction head H.

If the calculated result H is negative, a pressure over H is required at the inlet side of the pump.



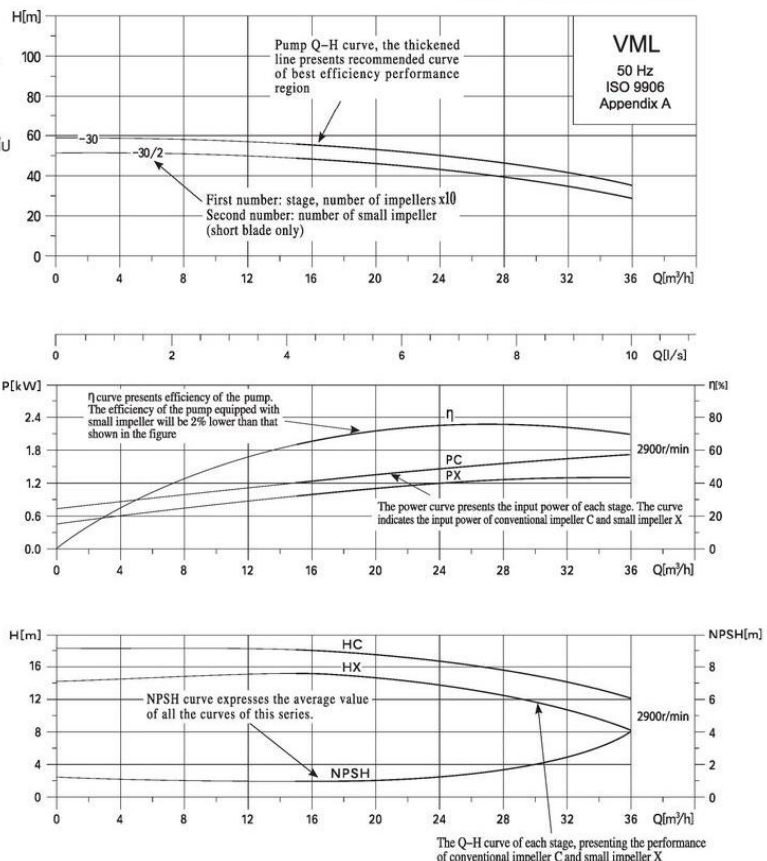
Note: T-Hv at the right side of the figure means steaming pressure of water at different temperatures.
หมายเหตุ : T-Hv บนตารางด้านขวาของตัวปั๊มเป็นค่าความดันไอ

INTRODUCTION OF PERFORMANCE CURVE ข้อแนะนำเกี่ยวกับเส้นกราฟแสดงความสามารถของปั๊ม

The following instructions are suitable for the performance curves shown below : ข้ออธิบายสำหรับกราฟแสดงความสามารถของปั๊มมีดังนี้

- All the performance curves are based on the measured values of 3 phase-380~450V, 50Hz and a constant motor speed at 2900 rpm.
 - เส้นกราฟแสดงความสามารถของปั๊มมีค่าการทดสอบมอเตอร์ 2900 รอบ/นาที 380-450V 50 เฮิรตซ์ 3 เฟส
- Curve tolerance is in conformity with ISO 9906 Appendix A
 - เส้นกราฟมีค่าความแม่นยำตามมาตรฐาน ไอเอสโอ 9906 ภาคผนวก เอ
- Measurement is done with air-free water at normal temperature.
 - การวัดค่าต่างๆ กรทำที่น้ำไม่มีฟองอากาศที่อุณหภูมิปกติ
- The operation of pump shall refer to the recommended performance region indicated by the thickened line to prevent dangers due to too small or too large flow rate.
 - การทำงานของปั๊มมีแนวโน้มให้อยู่ในช่วงเส้นกราฟที่หนา เพื่อป้องกันอันตรายจากปริมาณการไหลที่น้อยหรือมากเกินไป

CURVE EXPLANATION



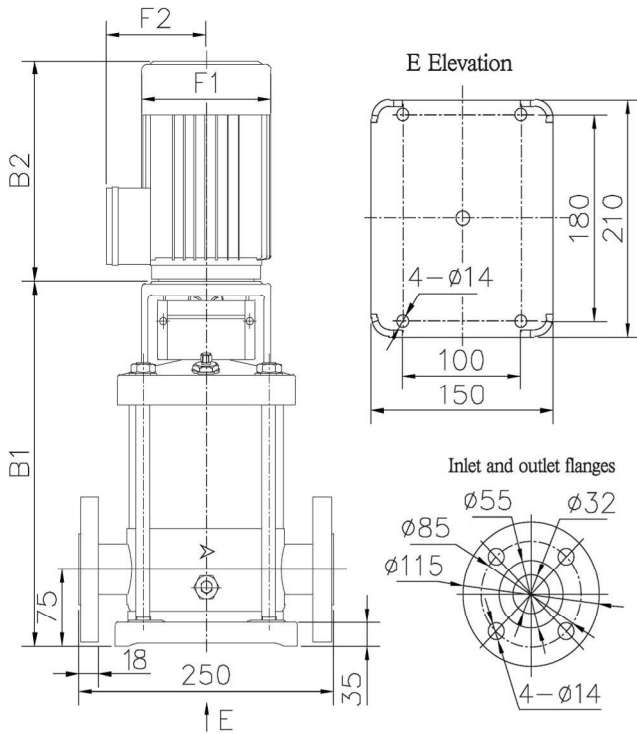
Pump Model	Minimum flow rate m³/h อัตราการไหลต่ำสุด	
	+70°C	>70°C~120°C
VML1	0.1	0.4
VML2	0.2	0.6
VML3	0.3	0.9
VML4	0.4	1.1
VML5	0.5	1.4
VML8	0.8	2.1
VML10	1.0	2.6
VML12	1.2	3.1
VML16	1.6	4.1
VML20	2.0	5.1
VML32	3.2	8.1
VML45	4.5	11.4
VML65	6.5	16.4
VML90	9.0	22.6
VML120	12.0	30.1
VML150	15.0	37.6
VML200	20.0	50.1

MINIMUM FLOW RATE : อัตราไหลต่ำสุด

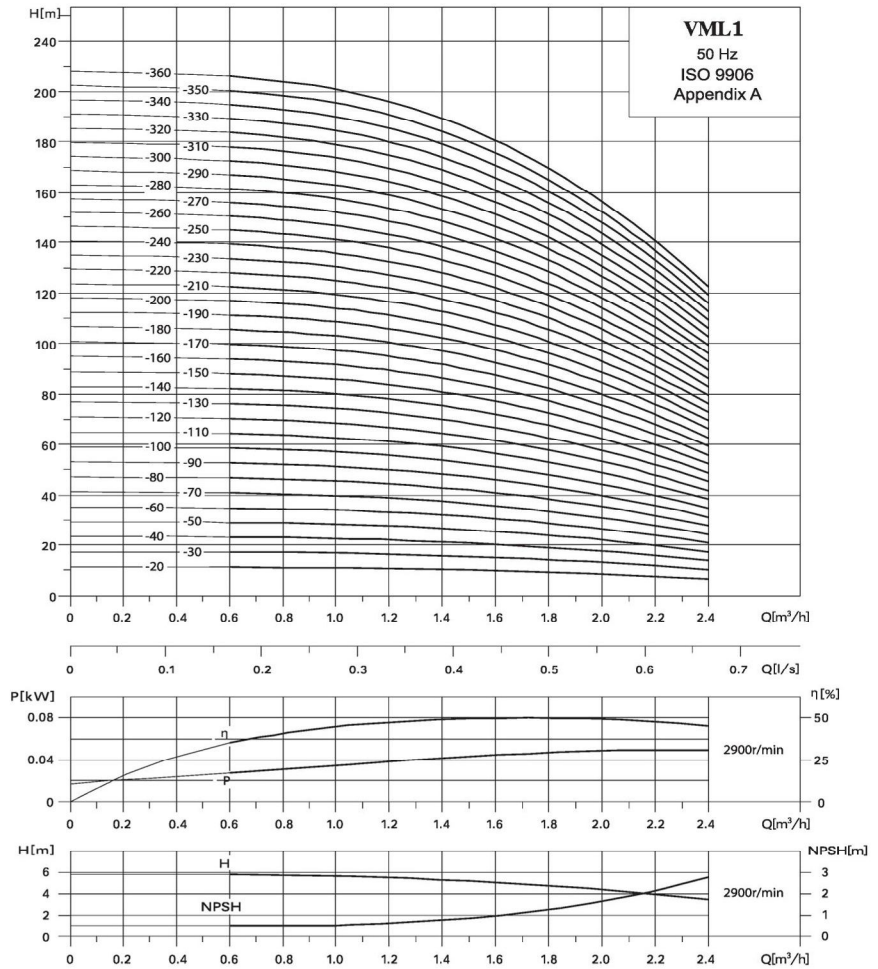
To avoid damages caused by overheating, the pump mustn't run under minimum flow rate เพื่อป้องกันปัญหาจากการเกิดความร้อนสูงเกินไป ปั๊มจะต้องมีน้ำไหลสูงกว่าอัตราการไหลต่ำสุด

Dimensions VML1

● Installation sketch



Performance Curve

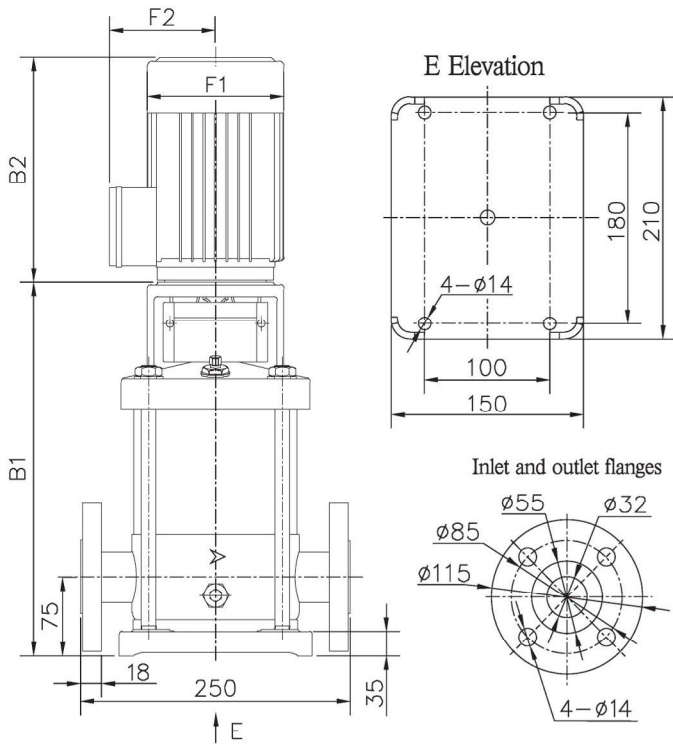


● Performance parameter (for reference only) and size table

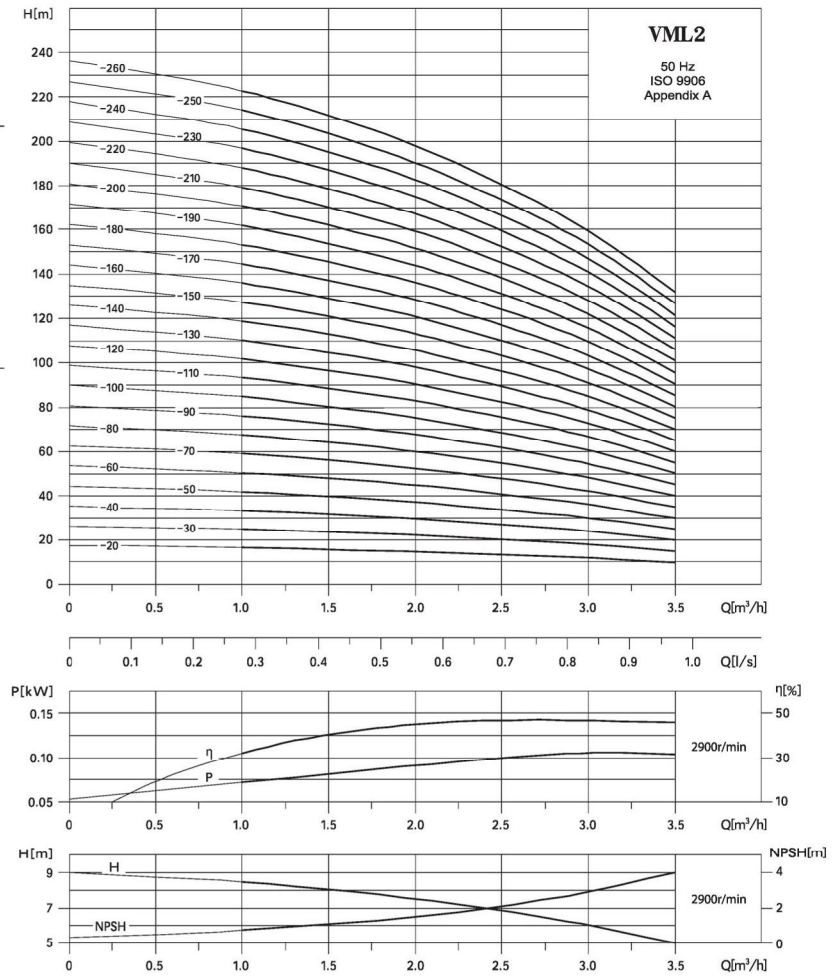
Pump Model	Motor power (kW)	Flow rate (m³/h)	Flow rate (m³/h)										Size (mm)				Weight (kg)	
			0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	B1	B2	B1+B2	F1		F2
VML1-20	0.37		11	11	11	10.5	10	9.5	9	8.5	7.5	6.5	257	215	472	140	119	20
VML1-30	0.37		17	17	16.5	16	15.5	15	14	13	11.5	10	275	215	490	140	119	20
VML1-40	0.37		23	23	22.5	22	21	20	19	17.5	15.5	13.5	293	215	508	140	119	21
VML1-50	0.37		29	28.5	28	27.5	26.5	25.5	24	22	19.5	17	311	215	526	140	119	21
VML1-60	0.37		35	34.5	34	33	32	30.5	28.5	26.5	23.5	20.5	329	215	544	140	119	22
VML1-70	0.37		40.5	40.5	39.5	38.5	37.5	35.5	33.5	31	27.5	24	347	215	562	140	119	22
VML1-80	0.55		46.5	46	45.5	44.5	43	41	38.5	35.5	32	27.5	365	215	580	140	119	25
VML1-90	0.55		53	52	51	50	48	46	43	40	36	31	383	215	598	140	119	25
VML1-100	0.55		59	58	57	56	54	51	48	44	40	34.5	401	215	616	140	119	26
VML1-110	0.55		64	64	63	61	59	56	53	48.5	44	38	419	215	634	140	119	26
VML1-120	0.75		70	70	69	67	65	62	58	53	48	41.5	446	244	690	151	125	27
VML1-130	0.75		76	76	74	73	70	67	63	58	52	45	464	244	708	151	125	27
VML1-140	0.75		82	81	80	78	75	72	68	62	56	48.5	482	244	726	151	125	27
VML1-150	0.75		88	87	86	84	81	77	72	67	60	52	500	244	744	151	125	28
VML1-160	1.1		94	93	92	89	86	82	77	71	64	56	518	244	762	151	125	29
VML1-170	1.1		100	99	97	95	92	87	82	76	68	59	536	244	780	151	125	30
VML1-180	1.1		106	105	103	100	97	92	87	80	72	63	554	244	798	151	125	30
VML1-190	1.1		111	110	109	106	102	97	92	84	76	66	572	244	816	151	125	31
VML1-200	1.1		117	116	114	111	107	102	96	89	80	69	590	244	834	151	125	31
VML1-210	1.1		123	121	119	117	113	107	101	93	84	73	608	244	852	151	125	31
VML1-220	1.1		128	127	125	122	118	112	105	97	87	76	626	244	870	151	125	32
VML1-230	1.1		134	132	130	127	123	117	110	101	91	79	644	244	888	151	125	32
VML1-240	1.5		139	138	136	133	128	122	115	106	95	83	673	287	960	171	138	38
VML1-250	1.5		145	143	141	138	133	127	119	110	99	86	691	287	978	171	138	38
VML1-260	1.5		150	149	147	143	138	132	124	114	103	89	709	287	996	171	138	39
VML1-270	1.5		156	154	152	148	143	137	128	118	106	93	729	287	1014	171	138	39
VML1-280	1.5		161	160	157	154	148	141	133	122	110	96	745	287	1032	171	138	40
VML1-290	1.5		167	165	163	159	153	146	137	127	114	99	763	287	1050	171	138	40
VML1-300	1.5		173	171	168	164	159	151	142	131	118	103	781	287	1068	171	138	40
VML1-310	2.2		178	176	174	169	164	156	147	135	121	106	799	287	1086	171	138	43
VML1-320	2.2		184	182	179	175	169	161	151	139	125	109	817	287	1104	171	138	44
VML1-330	2.2		189	187	185	180	174	166	156	143	129	113	835	287	1122	171	138	44
VML1-340	2.2		195	193	190	185	179	171	160	148	133	116	853	287	1140	171	138	45
VML1-350	2.2		201	199	196	191	184	176	165	152	137	119	871	287	1158	171	138	45
VML1-360	2.2		206	204	201	196	189	181	170	156	141	122	889	287	1176	171	138	45

DIMENSIONS VML2

● Installation sketch



Performance Curve



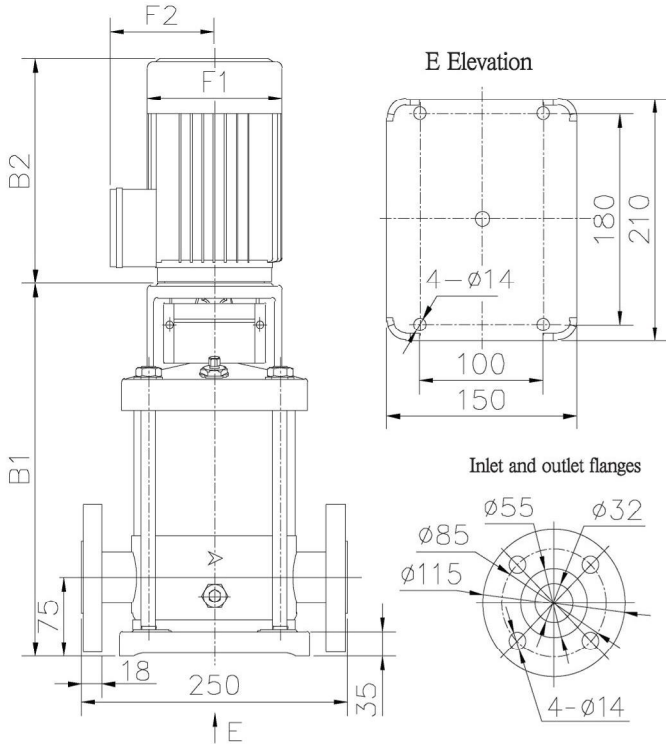
● Performance parameter (for reference only) and size table

Pump Model	Motor power (kW)	Flow rate (m³/h)	Flow rate (m³/h)								Size (mm)					Weight (kg)
			1.0	1.5	2.0	2.5	3.0	3.5	B1	B2	B1+B2	F1	F2			
VML2-20	0.37		16.5	15.5	14.5	13	11.5	9.5	257	215	472	140	119	20		
VML2-30	0.37		25	23.5	22	20	17.5	14.5	275	215	490	140	119	20		
VML2-40	0.55		33.5	31.5	29.5	27	24	19.5	293	215	508	140	119	23		
VML2-50	0.55		42	39.5	37	34	30	24.5	311	215	526	140	119	23		
VML2-60	0.75		51	48	45	41	36	30	338	244	582	151	125	24		
VML2-70	0.75		59	56	52	47.5	42	35	356	244	600	151	125	24		
VML2-80	1.1		68	64	60	55	48.5	40	374	244	618	151	125	26		
VML2-90	1.1		76	72	68	62	55	45	392	244	636	151	125	26		
VML2-100	1.1		85	80	75	69	61	50	410	244	654	151	125	27		
VML2-110	1.1		93	89	83	76	67	55	428	244	672	151	125	27		
VML2-120	1.5		102	97	90	82	73	60	457	287	744	171	138	33		
VML2-130	1.5		110	105	98	89	79	65	475	287	762	171	138	33		
VML2-140	1.5		119	113	106	96	85	70	493	287	780	171	138	34		
VML2-150	1.5		127	121	113	103	91	75	511	287	798	171	138	34		
VML2-160	2.2		136	129	121	110	97	80	529	287	816	171	138	37		
VML2-170	2.2		144	137	128	117	103	85	547	287	834	171	138	38		
VML2-180	2.2		153	145	136	124	110	91	565	287	852	171	138	38		
VML2-190	2.2		162	154	144	131	116	96	583	287	870	171	138	38		
VML2-200	2.2		171	162	152	138	122	101	601	287	888	171	138	39		
VML2-210	2.2		179	170	159	145	128	106	619	287	906	171	138	39		
VML2-220	2.2		188	179	167	152	134	111	637	287	924	171	138	40		
VML2-230	3		197	187	175	159	141	116	665	337	1002	196	150	48		
VML2-240	3		206	195	183	166	147	121	683	337	1020	196	150	48		
VML2-250	3		214	203	190	173	153	127	701	337	1038	196	150	49		
VML2-260	3		223	212	198	181	159	132	719	337	1056	196	150	49		

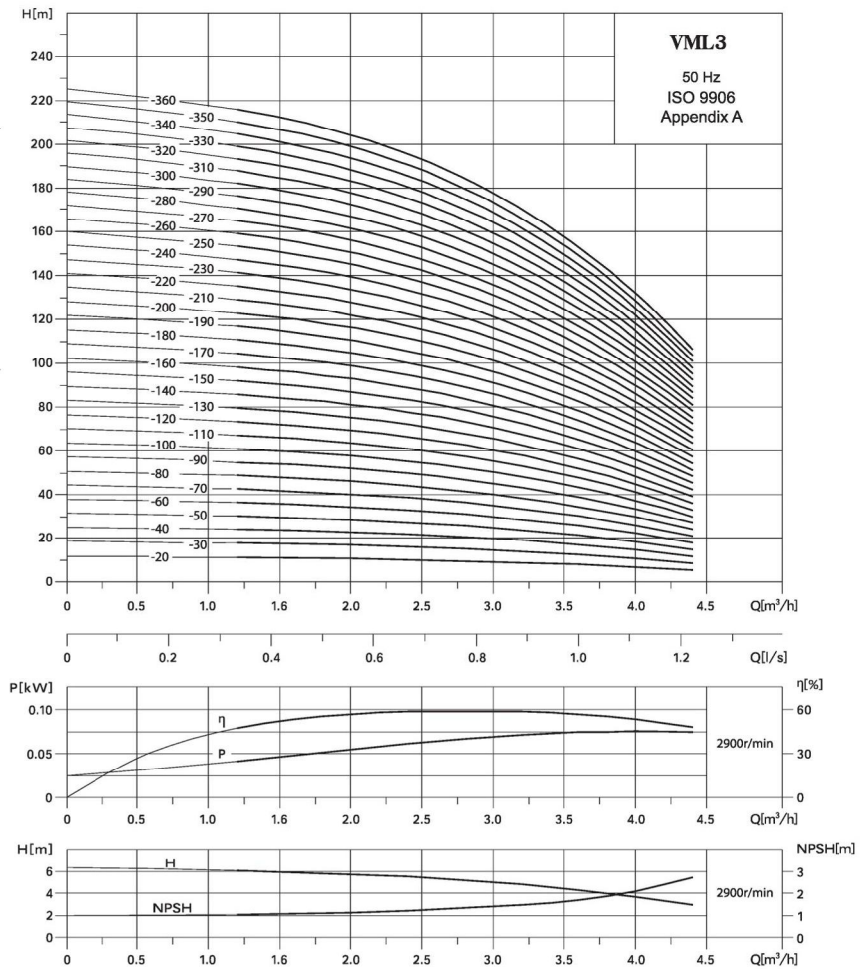
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DIMENSIONS VML3

● Installation sketch



Performance Curve

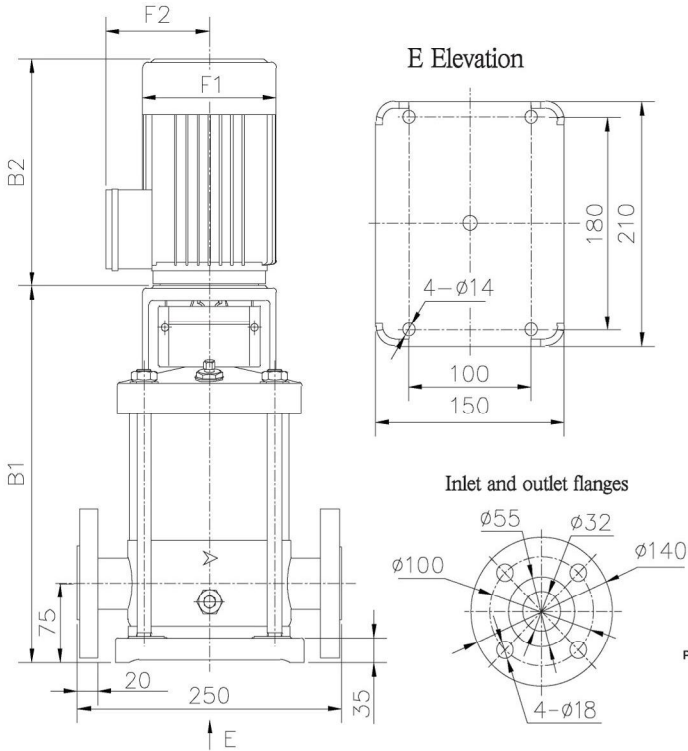


● Performance parameter (for reference only) and size table

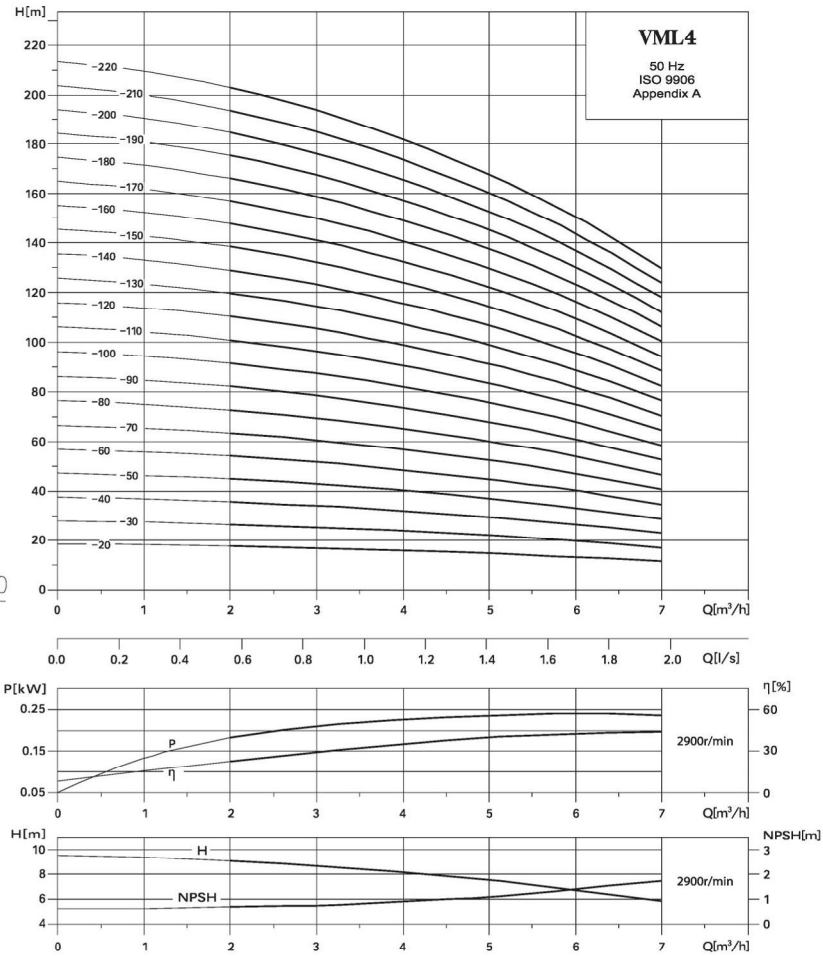
Pump Model	Motor power (kW)	Flow rate (m³/h)	Head (m)								Size (mm)					Weight (kg)
			1.2	1.5	2.0	2.5	3.0	3.5	4.0	4.5	B1	B2	B1+B2	F1	F2	
VML3-20	0.37		11	11	10.5	10	9	8	7	5.5	275	215	472	140	119	20
VML3-30	0.37		17.5	17.5	17	16	14.5	13	11	8.5	275	215	490	140	119	20
VML3-40	0.37		24	23.5	22.5	21.5	20	17.5	14.5	12	293	215	508	140	119	21
VML3-50	0.37		30	29.5	28.5	27	25	22	18.5	15	311	215	526	140	119	21
VML3-60	0.55		36.5	36	34.5	32.5	30	26.5	22	18	329	215	544	140	119	24
VML3-70	0.55		42.5	42	40.5	38	35	31	26	21	347	244	562	140	119	24
VML3-80	0.75		48.5	48	46	43.5	40	35.5	29.5	24	367	244	611	151	125	25
VML3-90	0.75		55	54	52	49	45	40	33.5	27	385	244	629	151	125	25
VML3-100	0.75		61	60	58	55	50	44.5	37.5	30	403	244	647	151	125	26
VML3-110	1.1		67	66	64	60	55	49	41	33	421	244	665	151	125	27
VML3-120	1.1		74	72	70	66	61	54	45	36	439	244	683	151	125	28
VML3-130	1.1		80	78	75	71	66	58	48.5	39	457	244	701	151	125	28
VML3-140	1.1		86	84	81	77	71	63	52	42	475	244	719	151	125	29
VML3-150	1.1		92	91	87	82	76	67	56	45	493	244	737	151	125	29
VML3-160	1.5		98	97	93	88	81	72	60	48	521	287	808	171	138	35
VML3-170	1.5		104	103	99	93	86	76	64	51	539	287	826	171	138	35
VML3-180	1.5		111	109	105	99	91	81	68	54	557	287	844	171	138	35
VML3-190	1.5		117	115	110	104	96	85	71	57	575	287	862	171	138	36
VML3-200	2.2		123	121	116	110	101	90	75	60	593	287	880	171	138	39
VML3-210	2.2		129	127	122	115	106	94	79	63	611	287	898	171	138	39
VML3-220	2.2		135	133	128	121	111	99	83	66	629	287	916	171	138	40
VML3-230	2.2		141	139	134	126	116	103	86	69	647	287	934	171	138	40
VML3-240	2.2		147	145	139	132	121	108	90	72	665	287	952	171	138	41
VML3-250	2.2		153	151	145	137	126	112	94	75	683	287	970	171	138	41
VML3-260	2.2		159	156	151	142	131	116	97	78	701	287	988	171	138	41
VML3-270	2.2		165	162	156	147	136	120	101	81	719	287	1006	171	138	42
VML3-280	2.2		171	168	161	153	141	125	104	84	737	287	1024	171	138	42
VML3-290	2.2		176	173	167	158	145	129	108	87	755	287	1042	171	138	43
VML3-300	3		182	179	172	163	150	133	111	90	784	337	1121	196	150	50
VML3-310	3		188	185	178	168	155	137	115	92	802	337	1139	196	150	51
VML3-320	3		193	190	183	173	159	141	118	95	820	337	1157	196	150	51
VML3-330	3		199	196	188	178	164	145	122	98	838	337	1175	196	150	52
VML3-340	3		205	201	194	183	169	150	125	101	856	337	1193	196	150	52
VML3-350	3		210	207	194	188	173	154	128	103	874	337	1211	196	150	53
VML3-360	3		216	216	204	193	178	158	132	106	892	337	1229	196	150	53

DIMENSIONS VML4

● Installation sketch



Performance Curve



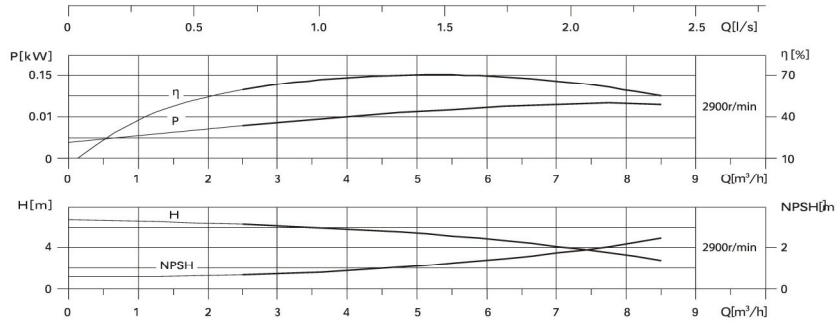
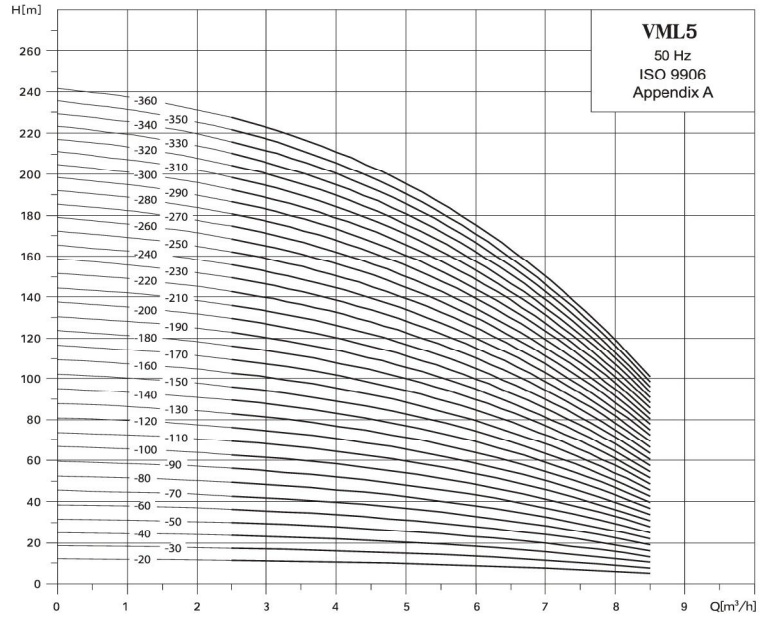
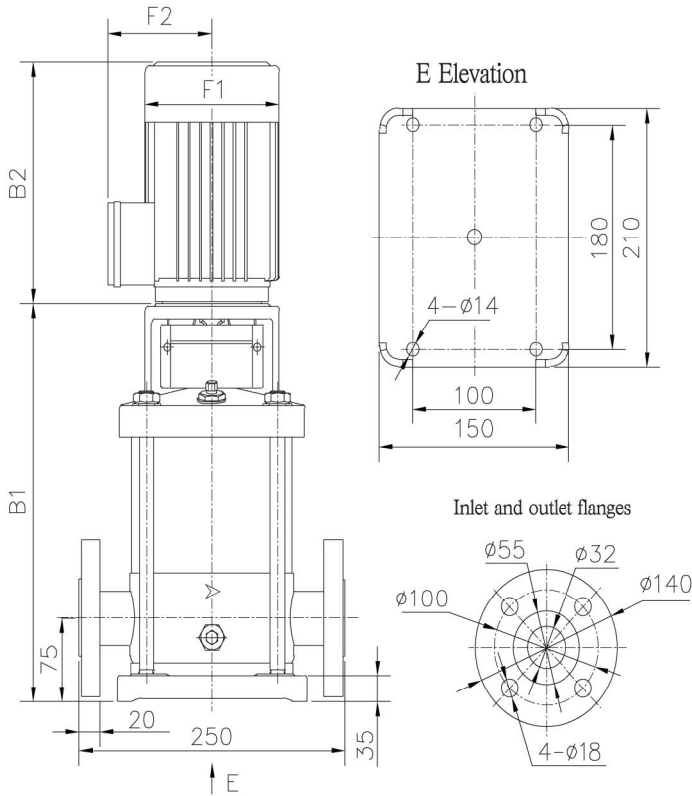
● Performance parameter (for reference only) and size table

Pump Model	Motor power (kW)	Flow rate (m³/h)	2	3	4	5	6	7	Size (mm)					Weight (kg)
									B1	B2	B1+B2	F1	F2	
VML4-20	0.37		17.5	16.5	15.5	14.5	13	11	275	215	490	140	119	21
VML4-30	0.55		26.5	25.5	23.5	22	19.5	17	302	215	517	140	119	24
VML4-40	0.75		35.5	34	32	29.5	26.5	23.5	338	244	582	151	125	25
VML4-50	1.1		44.5	42.5	40	37	33	28.5	365	244	609	151	125	27
VML4-60	1.1		54	52	48.5	44.5	40	34.5	392	244	636	151	125	27
VML4-70	1.5		63	61	57	52	47	40.5	430	287	717	171	138	33
VML4-80	1.5		73	69	65	60	54	46.5	457	287	744	171	138	34
VML4-90	2.2		82	78	74	68	61	52	484	287	771	171	138	37
VML4-100	2.2		92	87	82	76	68	58	511	287	798	171	138	38
VML4-110	2.2		101	96	90	83	75	64	538	287	825	171	138	38
VML4-120	2.2	Head (m)	110	105	99	91	82	70	565	287	852	171	138	39
VML4-130	3		120	114	107	99	89	76	602	337	939	196	150	46
VML4-140	3		129	123	116	107	96	82	629	337	966	196	150	48
VML4-150	3		138	132	124	114	103	88	656	337	993	196	150	48
VML4-160	3		148	141	132	122	110	94	683	337	1020	196	150	49
VML4-170	4		157	150	141	130	116	100	710	350	1060	215	169	55
VML4-180	4		166	159	149	137	123	106	737	350	1087	215	169	55
VML4-190	4		175	168	157	145	130	112	764	350	1114	215	169	56
VML4-200	4		185	176	166	153	137	118	791	350	1141	215	169	57
VML4-210	4		194	185	174	160	144	124	818	350	1168	215	169	57
VML4-220	4		203	194	182	168	151	130	845	350	1195	215	169	58

DIMENSIONS VML5

Performance Curve

● Installation sketch



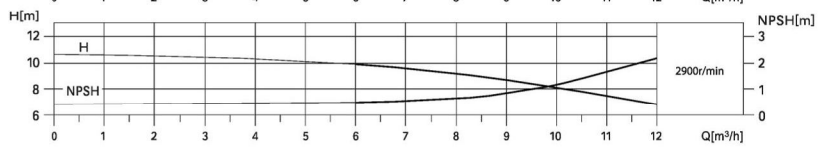
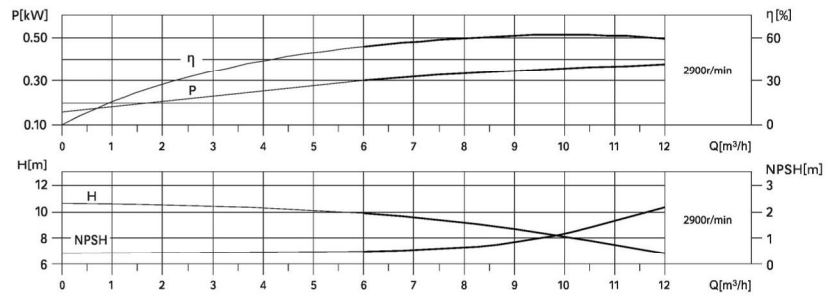
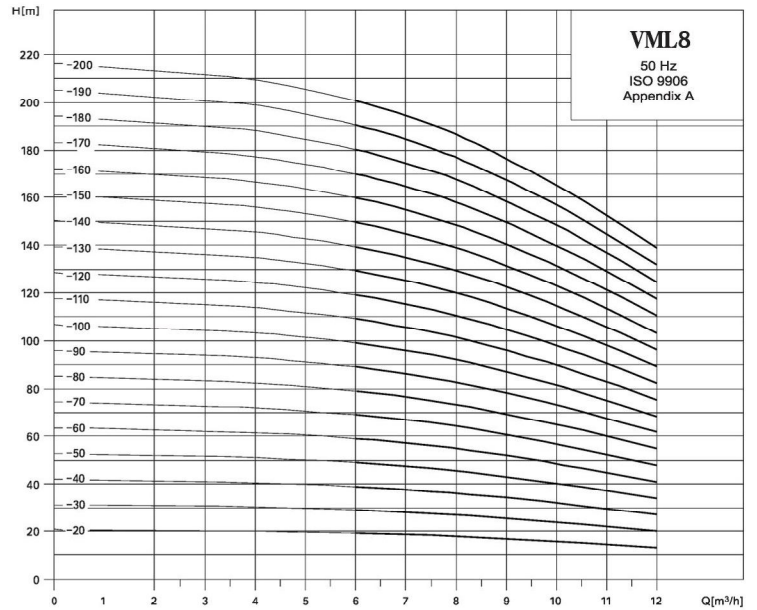
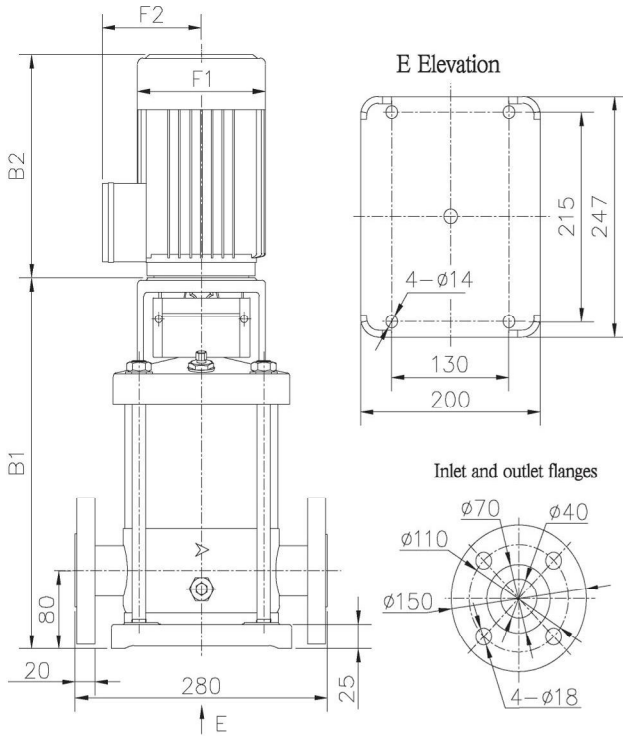
● Performance parameter (for reference only) and size table

Pump Model	Motor power (kW)	Flow rate (m³/h)	Head (m)										Size (mm)					Weight (kg)
			2.5	3.0	4.0	5.0	6.0	7.0	8.0	8.5	B1	B2	B1+B2	F1	F2			
VML5-20	0.37		11.5	11	10.5	10	9	7.5	6	5	275	215	490	140	119	21		
VML5-30	0.55		17.5	17	16	15	13.5	11.5	9	7.5	302	215	517	140	119	24		
VML5-40	0.55		23.5	23	22	20	18	15.5	12.5	10.5	329	215	544	140	119	25		
VML5-50	0.75		30	29	27.5	25.5	23	19.5	15.5	13	365	244	609	151	125	26		
VML5-60	0.75		36.5	35.5	33.5	31	28	24	19	16	392	244	636	151	125	26		
VML5-70	1.1		42.5	42	39.5	36.5	33	28	22.5	19	419	244	663	151	125	28		
VML5-80	1.1		49.5	48.5	46	42.5	38	32.5	26	22	446	244	690	151	125	29		
VML5-90	1.5		56	55	52	48	43	37	29	25	484	287	771	171	138	34		
VML5-100	1.5		63	61	58	54	48.5	41.5	32.5	28	511	287	798	171	138	35		
VML5-110	2.2		69	68	64	60	53	45.5	36	30.5	538	287	825	171	138	38		
VML5-120	2.2		76	74	71	65	59	50	39.5	33.5	565	287	852	171	138	39		
VML5-130	2.2		83	81	77	71	64	55	43	36.5	592	287	879	171	138	39		
VML5-140	2.2		89	88	83	77	69	59	46.5	39.5	619	287	906	171	138	40		
VML5-150	2.2		96	94	89	83	74	63	50	42.5	646	287	933	171	138	41		
VML5-160	2.2		103	101	95	88	79	68	54	45.5	673	287	960	171	138	41		
VML5-170	3		110	107	102	94	85	72	57	48.5	710	337	1047	196	150	49		
VML5-180	3		116	114	108	100	90	77	61	52	737	337	1074	196	150	50		
VML5-190	3		123	120	114	106	95	81	64	55	764	337	1101	196	150	50		
VML5-200	3		129	127	120	111	100	86	68	58	791	337	1128	196	150	51		
VML5-210	4		136	133	126	117	105	90	71	60	818	350	1168	215	169	57		
VML5-220	4		143	140	132	123	110	94	75	63	845	350	1195	215	169	58		
VML5-230	4		149	146	139	128	115	99	78	66	872	350	1222	215	169	58		
VML5-240	4		156	153	145	134	120	103	81	69	899	350	1249	215	169	59		
VML5-250	4		162	159	150	139	125	107	85	72	926	350	1276	215	169	59		
VML5-260	4		168	165	156	145	130	111	88	75	953	350	1303	215	169	60		
VML5-270	4		175	171	162	150	135	115	91	78	980	350	1330	215	169	61		
VML5-280	4		181	177	168	155	139	119	95	80	1007	350	1357	215	169	61		
VML5-290	4		187	183	173	161	144	123	98	83	1034	350	1384	215	169	62		
VML5-300	5.5		193	189	179	166	149	127	101	86	1060	383	1463	257	190	79		
VML5-310	5.5		199	195	184	171	153	131	104	88	1107	383	1490	257	190	81		
VML5-320	5.5		204	200	190	176	158	135	107	91	1134	383	1517	257	190	82		
VML5-330	5.5		210	206	195	181	162	139	110	93	1161	383	1544	257	190	84		
VML5-340	5.5		216	212	200	186	167	143	113	96	1188	383	1571	257	190	86		
VML5-350	5.5		222	217	206	191	171	146	116	98	1215	383	1598	257	190	87		
VML5-360	5.5		227	223	211	195	175	150	119	101	1242	383	1625	257	190	89		

DIMENSIONS VML8

Performance Curve

● Installation sketch



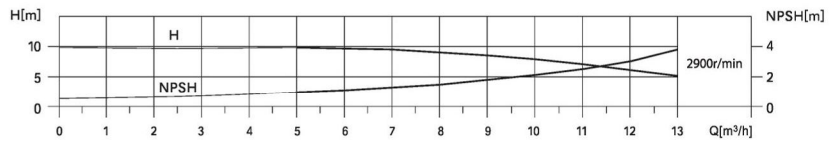
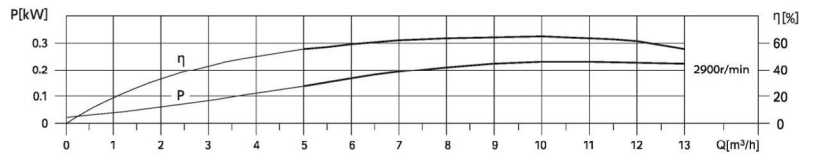
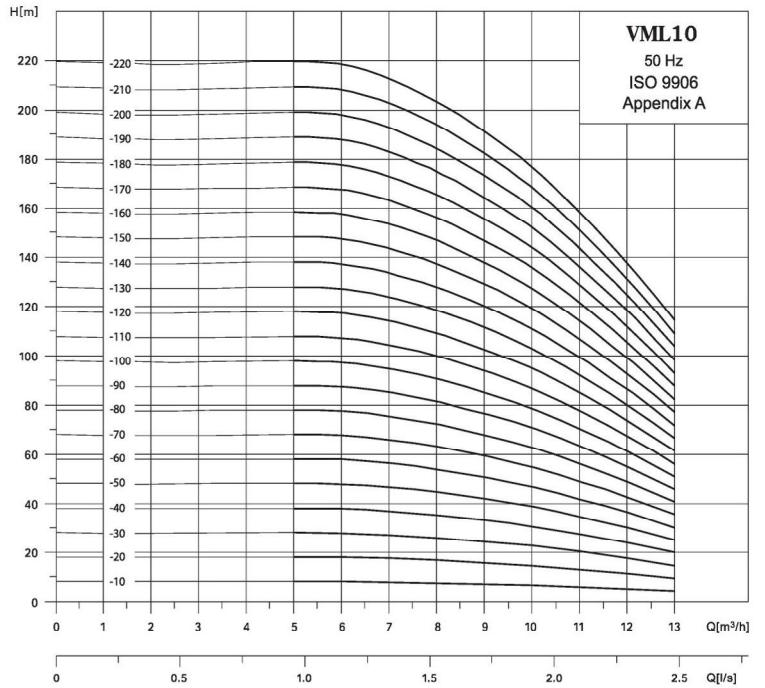
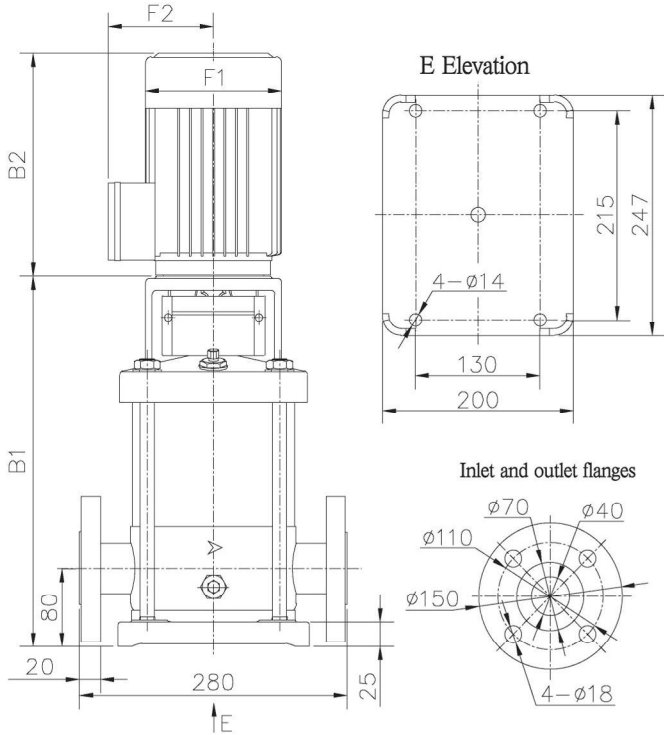
● Performance parameter (for reference only) and size table

Pump Model	Motor power (kW)	Flow rate (m³/h)	6	7	8	9	10	11	12	Size (mm)					Weight (kg)	
										B1	B2	B1+B2	F1	F2		
VML8-20	0.75		19	18.5	17.5	16.5	15.5	14.5	13	309	244	553	148	125	29	
VML8-30	1.1		29	28	27	25.5	24	22	20	339	244	583	148	125	31	
VML8-40	1.5		39	37.5	36	34	32	29.5	27	384	287	671	169	138	37	
VML8-50	2.2		49	47.5	45.5	43	40	37	34	414	287	701	169	138	41	
VML8-60	2.2		59	57	55	52	48.5	44.5	41	444	287	731	169	138	42	
VML8-70	3		69	67	64	61	57	52	47.5	479	337	816	194	150	50	
VML8-80	3		79	77	74	70	65	60	55	509	337	846	194	150	51	
VML8-90	4		89	86	83	78	73	68	62	539	350	889	215	169	58	
VML8-100	4		99	96	92	87	82	75	69	569	350	919	215	169	59	
VML8-110	4	Head (m)	109	106	102	96	90	83	76	599	350	949	215	169	60	
VML8-120	4		119	116	111	105	98	91	83	76	629	350	979	215	169	61
VML8-130	5.5		129	125	120	114	106	98	89	81	680	383	1063	257	190	79
VML8-140	5.5		140	135	130	123	115	106	96	87	710	383	1093	257	190	80
VML8-150	5.5		150	145	139	131	123	114	104	94	740	383	1123	257	190	81
VML8-160	5.5		160	155	149	140	132	121	111	101	770	383	1153	257	190	82
VML8-170	7.5		170	165	158	149	140	129	118	107	800	383	1183	257	190	87
VML8-180	7.5		181	175	168	159	148	137	125	113	830	383	1213	257	190	88
VML8-190	7.5		191	185	177	168	157	145	132	119	860	383	1243	257	190	89
VML8-200	7.5		201	195	187	177	165	152	139	125	890	383	1273	257	190	90

DIMENSIONS VML10

Performance Curve

● Installation sketch



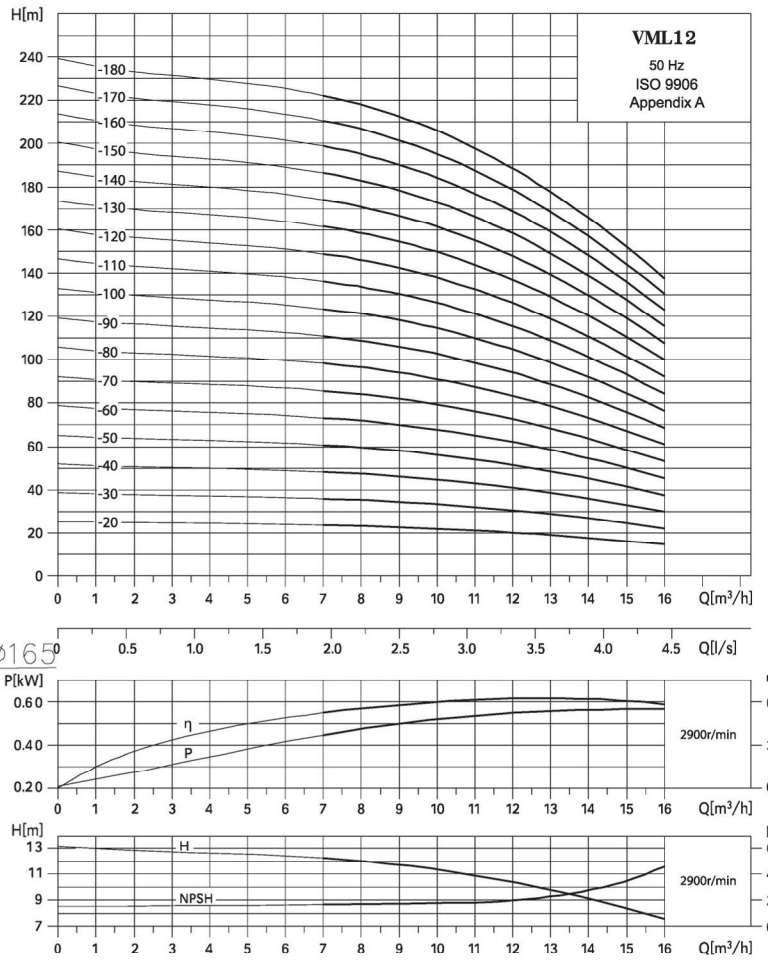
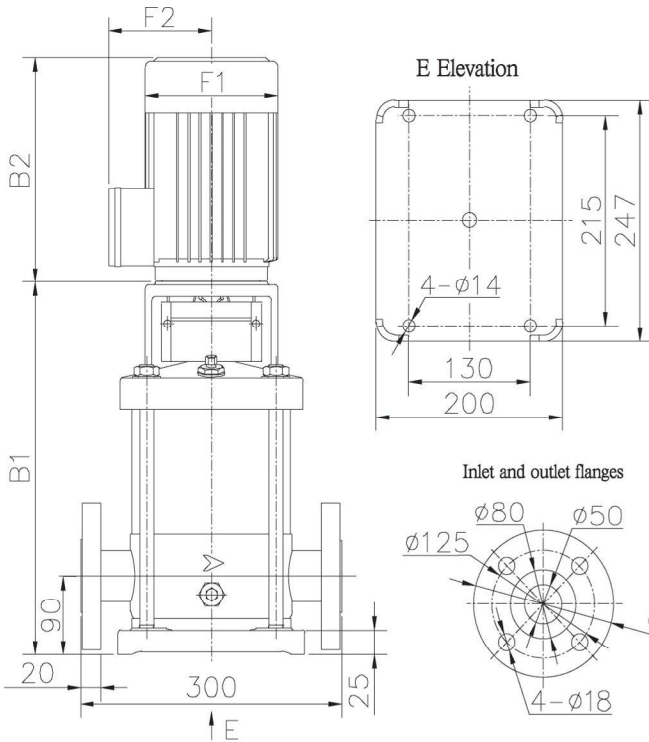
● Performance parameter (for reference only) and size table

Pump model	motor (kW)	flow (m³/h)	Head (m)									Size (mm)					weight (kg)
			5	6	7	8	9	10	11	12	13	B1	B2	B1+B2	F1	F2	
VML10-10	0.37		8	8	8	7.5	7	6.5	6	5	4	309	215	524	140	119	26
VML10-20	0.75		18	18	17.5	16.5	15.5	14.5	13	11	9.5	309	244	553	151	125	29
VML10-30	1.1		28	28	27	26	24.5	22.5	20	17.5	14.5	339	244	583	151	125	31
VML10-40	1.5		38	38	37	35	33	30.5	27.5	24	20	384	287	671	171	138	37
VML10-50	2.2		48	48	46.5	44.5	42	38.5	34.5	30	25	414	287	701	171	138	41
VML10-60	2.2		58	58	56	54	51	46.5	42	36.5	30	444	287	731	171	138	42
VML10-70	3		68	68	66	63	59	55	49	42.5	35.5	479	337	816	196	150	50
VML10-80	3		78	78	76	72	68	63	56	49	40.5	509	337	846	196	150	51
VML10-90	3		88	87	85	81	77	71	63	55	45.5	539	337	876	196	150	52
VML10-100	4		98	97	95	91	85	79	71	61	51	569	355	924	215	169	59
VML10-110	4		108	107	104	100	94	87	78	68	56	599	355	954	215	169	60
VML10-120	4		118	117	114	109	103	95	85	74	61	629	355	984	215	169	61
VML10-130	5.5		128	127	124	118	111	103	92	80	67	680	383	1063	257	190	79
VML10-140	5.5		138	137	134	128	120	111	99	86	72	710	383	1093	257	190	80
VML10-150	5.5		148	147	144	137	129	119	107	93	77	740	383	1123	257	190	81
VML10-160	5.5		158	158	153	147	138	128	114	99	83	770	383	1153	257	190	82
VML10-170	7.5		168	168	163	156	147	136	121	106	88	800	383	1183	257	190	87
VML10-180	7.5		179	178	173	165	156	144	129	112	93	830	383	1213	257	190	88
VML10-190	7.5		189	188	183	175	164	152	136	118	98	860	383	1243	257	190	89
VML10-200	7.5		199	198	193	184	173	160	144	125	104	890	383	1273	257	190	90
VML10-210	7.5		209	208	203	194	182	169	151	131	109	920	383	1303	257	190	91
VML10-220	7.5		220	218	213	203	191	177	158	138	114	950	383	1333	257	190	92

DIMENSIONS VML12

Performance Curve

● Installation sketch

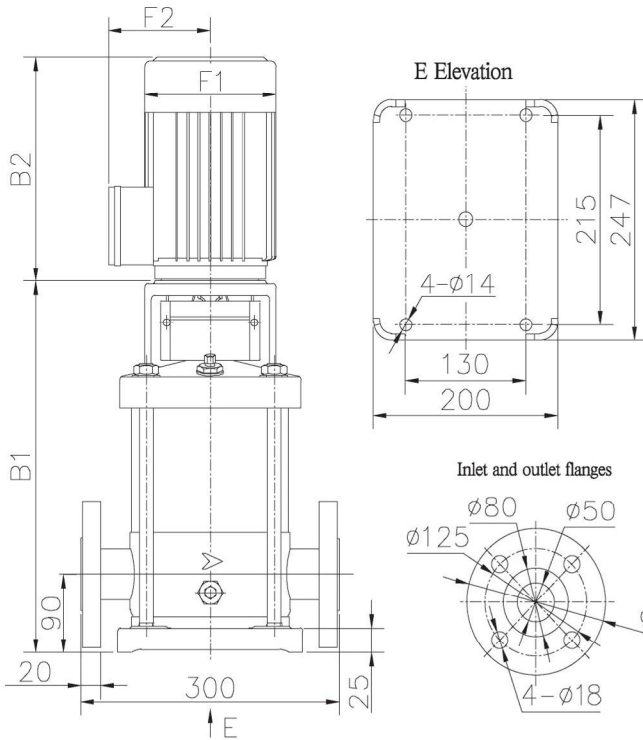


● Performance parameter (for reference only) and size table

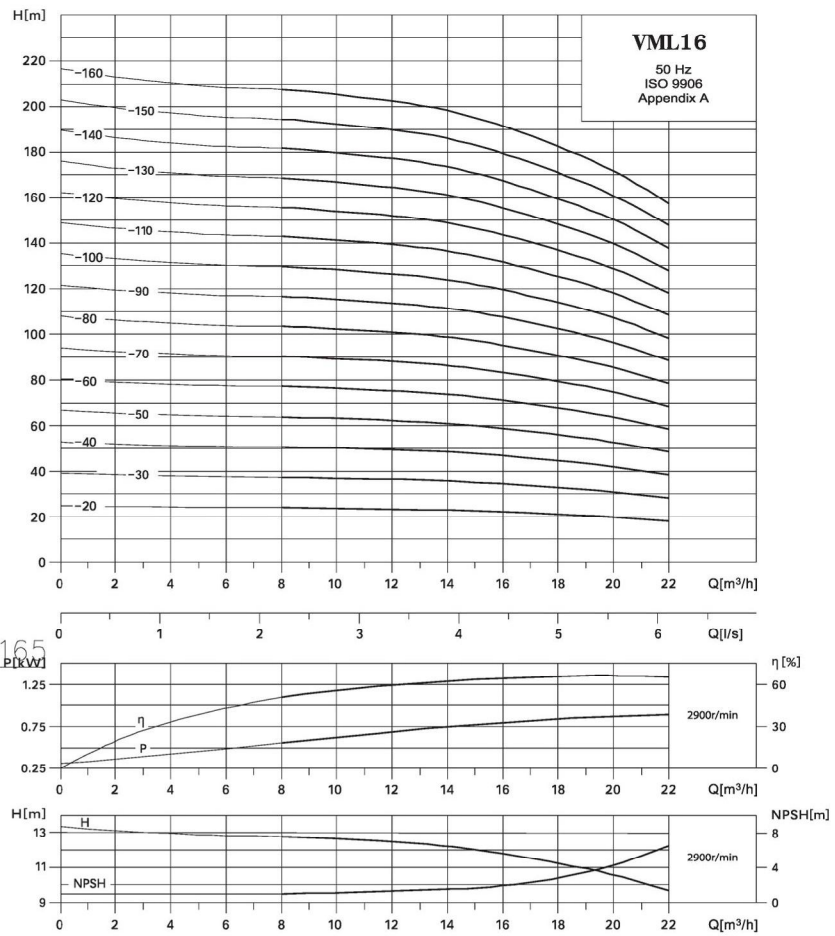
Pump model	motor (kW)	flow (m³/h)	7	8	9	10	11	12	13	14	15	16	Size (mm)					weight (kg)
													B1	B2	B1+B2	F1	F2	
VML12-20	1.5	Head (m)	23.5	23	22.5	22	21	20	19	17.5	16	14.5	339	287	626	171	138	37
VML12-30	2.2		36	35	34	33	32	30.5	28.5	26.5	24.5	22	369	287	656	171	138	40
VML12-40	3		48	47	46	44.5	43	41	38.5	36	33	30	404	337	741	196	150	48
VML12-50	3		61	60	58	56	54	51	48.5	45	41.5	37.5	434	337	771	196	150	50
VML12-60	4		73	72	70	68	66	62	59	55	50	45	464	350	814	215	169	56
VML12-70	5.5		86	84	82	79	76	73	69	64	59	53	518	383	901	257	190	74
VML12-80	5.5		98	96	94	91	87	83	79	73	67	61	548	383	931	257	190	75
VML12-90	5.5		111	109	106	103	99	94	89	83	76	69	578	383	961	257	190	76
VML12-100	7.5		124	121	118	115	110	105	99	92	84	76	608	383	991	257	190	81
VML12-110	7.5		136	134	130	126	121	116	109	101	93	84	638	383	1021	257	190	81
VML12-120	7.5		149	146	142	138	132	126	119	111	102	92	668	383	1051	257	190	83
VML12-130	11		161	158	154	150	144	137	129	120	110	100	784	506	1290	330	261	150
VML12-140	11		174	171	167	161	155	148	139	130	119	108	814	506	1320	330	261	151
VML12-150	11		186	183	178	173	166	158	149	139	128	115	844	506	1350	330	261	152
VML12-160	11		199	195	190	184	177	169	159	148	136	123	874	506	1380	330	261	153
VML12-170	11		211	207	202	195	187	179	168	157	144	130	904	506	1410	330	261	154
VML12-180	11		222	218	213	206	198	189	178	165	152	138	934	506	1440	330	261	155

DIMENSIONS VML16

● Installation sketch



Performance Curve

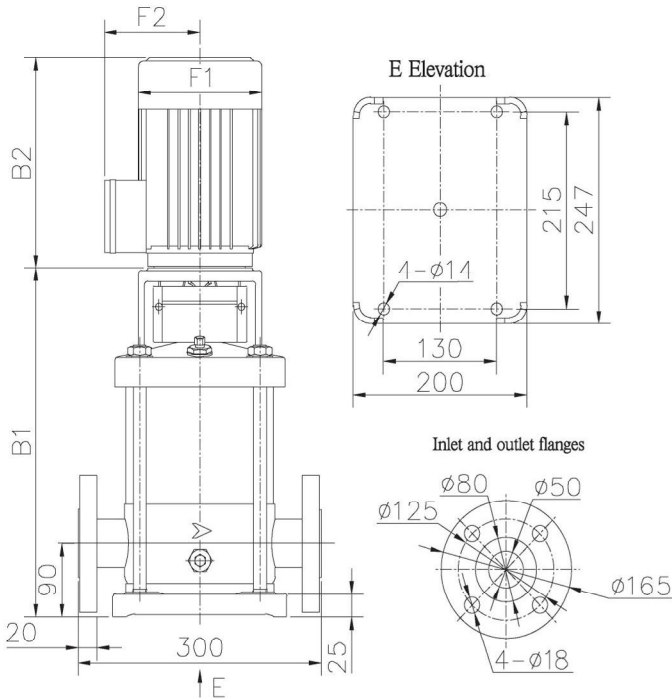


● Performance parameter (for reference only) and size table

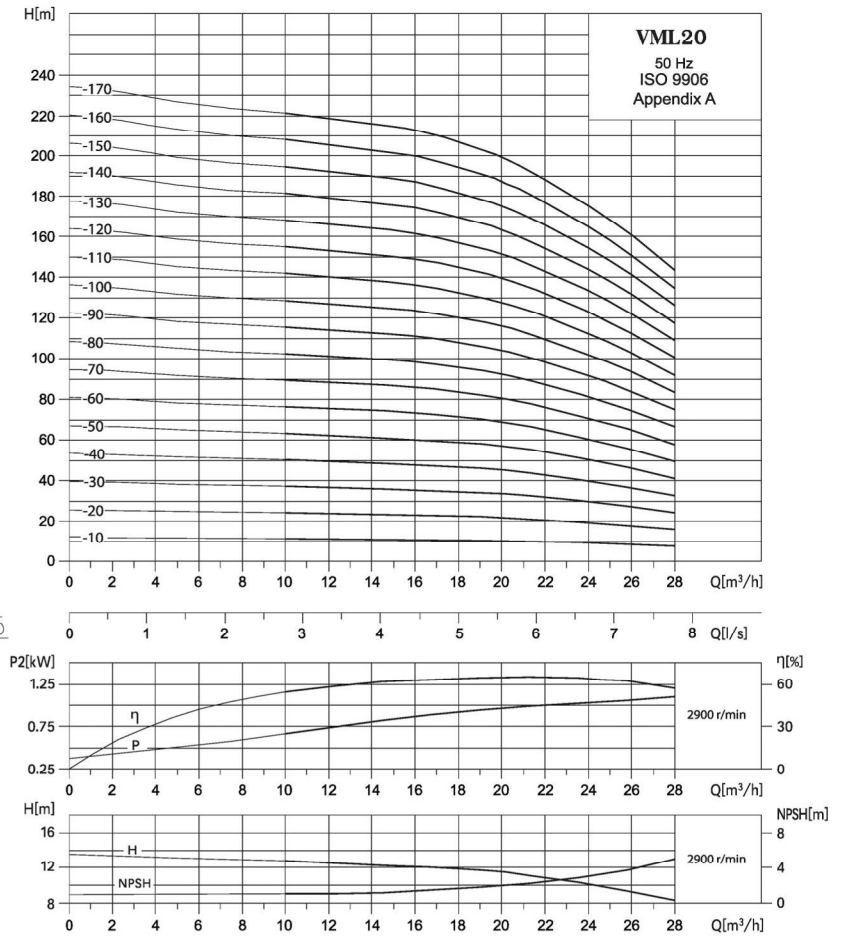
Pump Model	Motor power (kW)	Flow rate (m³/h)	Head (m)								Size (mm)					Weight (kg)
			8	10	12	14	16	18	20	22	B1	B2	B1+B2	F1	F2	
VML16-20	2.2	24	23.5	23.5	23	22	21	20	18	354	287	641	171	138	40	
VML16-30	3	37.5	37	36.5	36	34.5	33	31	28.5	404	337	741	196	150	49	
VML16-40	4	51	50	49.5	48.5	47	44.5	42	38.5	449	350	799	215	169	56	
VML16-50	5.5	64	63	63	61	59	56	53	48.5	518	383	901	257	190	72	
VML16-60	5.5	77	77	76	74	71	68	64	59	563	383	946	257	190	74	
VML16-70	7.5	91	90	88	87	84	80	75	69	608	383	991	257	190	80	
VML16-80	7.5	104	103	101	99	96	91	86	79	653	383	1036	257	190	81	
VML16-90	11	117	116	114	112	108	103	97	89	784	505	1289	330	261	148	
VML16-100	11	130	129	127	124	120	114	108	99	829	505	1334	330	261	149	
VML16-110	11	143	142	140	137	132	126	118	109	874	505	1379	330	261	151	
VML16-120	11	156	155	152	149	144	137	129	118	919	505	1424	330	261	152	
VML16-130	15	169	167	165	162	156	149	140	128	964	505	1469	330	261	164	
VML16-140	15	182	180	178	174	168	160	151	138	1009	505	1514	330	261	165	
VML16-150	15	195	193	191	187	180	172	161	148	1054	505	1559	330	261	166	
VML16-160	15	208	206	203	199	192	183	172	158	1099	505	1604	330	261	168	

DIMENSIONS VML20

● Installation sketch



Performance Curve

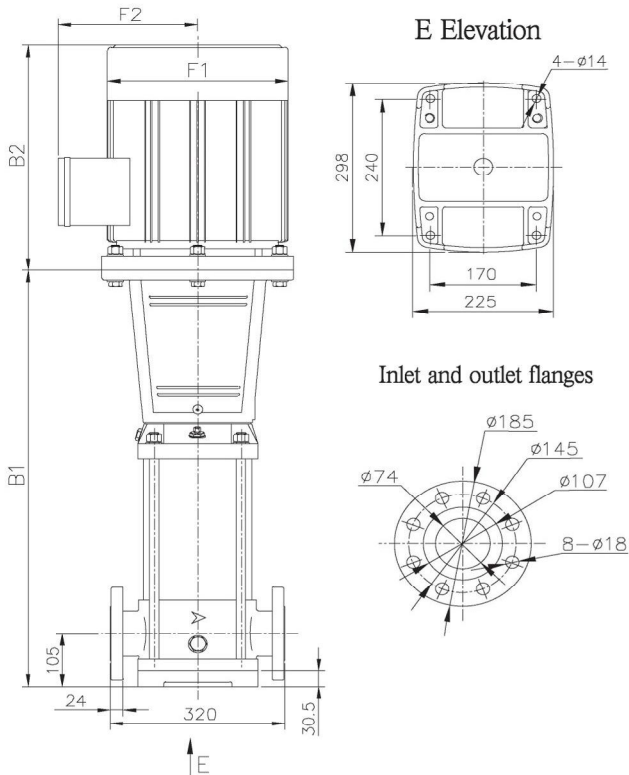


● Performance parameter (for reference only) and size table

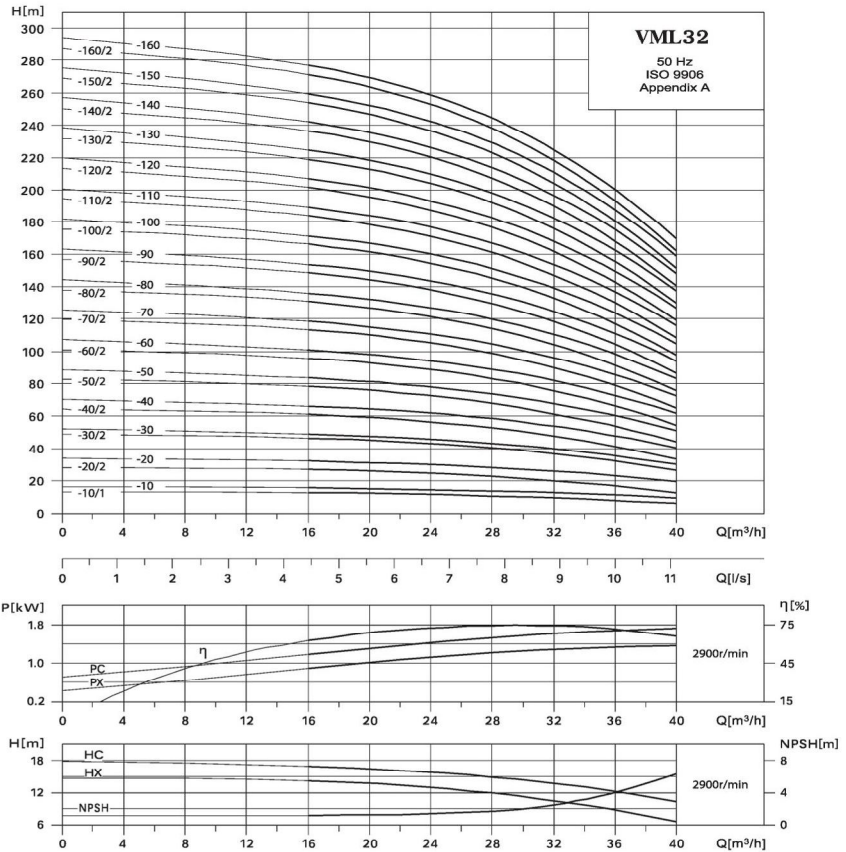
Pump model	motor (kW)	flow (m³/h)	Head (m)										Size (mm)					weight (kg)
			10	12	14	16	18	20	22	24	26	28	B1	B2	B1+B2	F1	F2	
VML20-10	1.1		11.5	11	11	10.5	10.5	10	9.5	9	8	7.5	339	244	583	151	125	32
VML20-20	2.2		24.5	24	23.5	23	22.5	22	20.5	19.5	17.5	16	354	287	641	171	138	41
VML20-30	4		37.5	37	36	35.5	34.5	34	32	29.5	27	24	404	350	754	215	169	54
VML20-40	5.5		51	50	49	48	47	45.5	43	40	36.5	32.5	473	383	856	257	190	72
VML20-50	5.5		64	63	61	60	59	57	54	51	46	41	518	383	901	257	190	73
VML20-60	7.5		77	76	74	73	71	69	65	61	56	49.5	563	383	946	257	190	78
VML20-70	7.5		90	88	87	85	83	81	76	71	65	58	608	383	991	257	190	80
VML20-80	11	Head (m)	103	101	99	98	95	93	88	82	75	67	740	505	1245	330	261	146
VML20-90	11		116	114	112	110	107	105	99	92	84	75	784	505	1289	330	261	148
VML20-100	11		129	127	125	123	119	116	110	102	94	84	829	505	1334	330	261	150
VML20-110	15		142	140	137	135	132	128	121	113	103	92	874	505	1379	330	261	161
VML20-120	15		156	153	150	148	144	140	132	123	113	101	919	505	1424	330	261	162
VML20-130	15		169	166	163	160	156	152	144	134	122	109	964	505	1469	330	261	164
VML20-140	15		182	179	176	173	168	164	155	144	132	118	1009	505	1514	330	261	165
VML20-150	18.5		195	192	188	185	181	176	166	155	142	127	1054	560	1614	330	261	187
VML20-160	18.5		209	205	201	198	193	188	178	165	151	135	1099	560	1659	330	261	188
VML20-170	18.5		222	219	214	211	205	200	189	176	161	144	1144	560	1704	330	261	189

DIMENSIONS VML32

● Installation sketch



Performance Curve

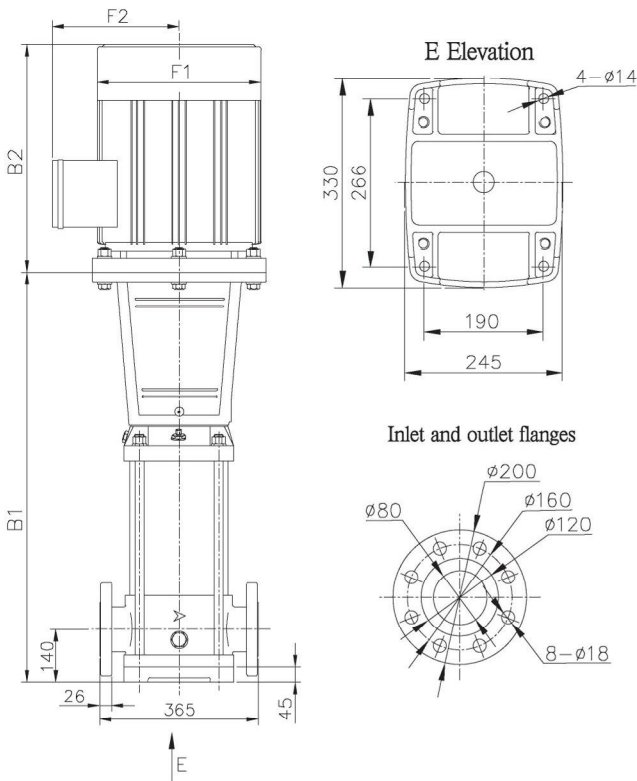


● Performance parameter (for reference only) and size table

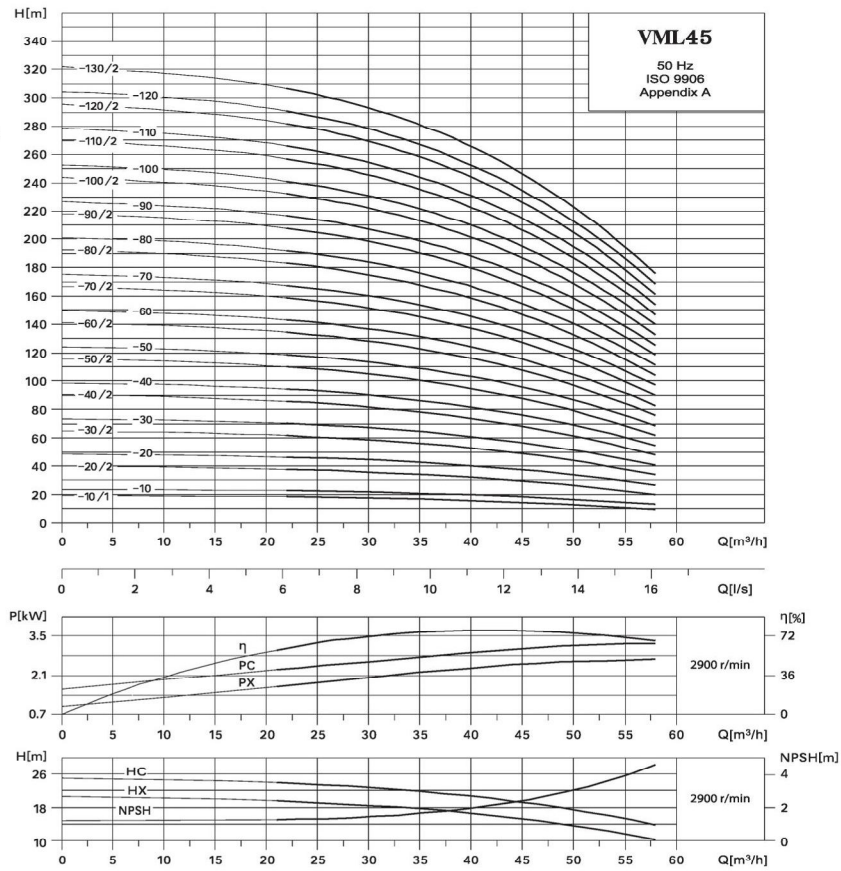
Pump Model	Motor power (kW)	Flow rate (m³/h)	Head (m)							Size (mm)					Weight (kg)
			16	20	24	28	32	36	40	B1	B2	B1+B2	F1	F2	
VML32-10/1	1.5		12.5	12	11.5	10.5	9.5	8	6	456	287	743	171	138	56
VML32-10	2.2		15.5	15	14.5	13.5	12.5	11	9.5	456	287	743	171	138	58
VML32-20/2	3		27	26	24.5	22.5	20	16.5	12.5	526	337	863	196	150	68
VML32-20	4		32	31	30	28.5	26	23	19.5	526	350	876	215	169	74
VML32-30/2	5.5		46.5	45	43	40.5	37	32	26.5	596	383	979	257	190	91
VML32-30	5.5		49	47.5	46	43.5	40	35.5	30	596	383	979	257	190	91
VML32-40/2	7.5		61	59	57	53	47.5	41.5	33.5	666	383	1049	257	190	98
VML32-40	7.5		66	64	62	59	54	48	40.5	666	383	1049	257	190	98
VML32-50/2	11		78	76	73	68	62	54	44	831	505	1336	330	261	167
VML32-50	11		84	81	78	74	68	60	51	831	505	1336	330	261	167
VML32-60/2	11		96	93	89	83	76	66	55	901	505	1406	330	261	169
VML32-60	11		101	98	94	89	82	73	62	901	505	1406	330	261	170
VML32-70/2	15		113	110	105	99	90	79	65	971	505	1476	330	261	182
VML32-70	15		118	115	111	105	96	86	73	971	505	1476	330	261	183
VML32-80/2	15		131	127	121	114	104	92	76	1041	505	1546	330	261	185
VML32-80	15		136	132	127	120	110	98	83	1041	505	1546	330	261	186
VML32-90/2	18.5		148	144	138	130	118	104	87	1111	560	1671	330	261	208
VML32-90	18.5		154	149	143	136	125	111	94	1111	560	1671	330	261	208
VML32-100/2	18.5		166	161	154	145	133	117	97	1181	560	1741	330	261	211
VML32-100	18.5		171	167	160	151	139	124	105	1181	560	1741	330	261	211
VML32-110/2	22		184	179	171	161	147	130	108	1251	590	1841	380	280	250
VML32-110	22		189	184	177	167	154	137	116	1251	590	1841	380	280	250
VML32-120/2	22		201	196	187	176	161	143	119	1321	590	1911	380	280	253
VML32-120	22		207	201	193	182	168	150	127	1321	590	1911	380	280	253
VML32-130/2	30		219	213	204	192	176	155	130	1391	660	2051	420	314	311
VML32-130	30		224	218	210	198	182	162	137	1391	660	2051	420	314	311
VML32-140/2	30		236	230	220	207	190	168	141	1461	660	2121	420	314	313
VML32-140	30		242	235	226	214	197	175	148	1461	660	2121	420	314	314
VML32-150/2	30		254	247	236	223	204	181	151	1531	660	2191	420	314	336
VML32-150	30		260	252	242	229	211	188	159	1531	660	2191	420	314	337
VML32-160/2	30		271	264	253	238	218	193	162	1601	660	2261	420	314	338
VML32-160	30		277	269	259	244	225	200	170	1601	660	2261	420	314	339

DIMENSIONS VML45

● Installation sketch



Performance Curve



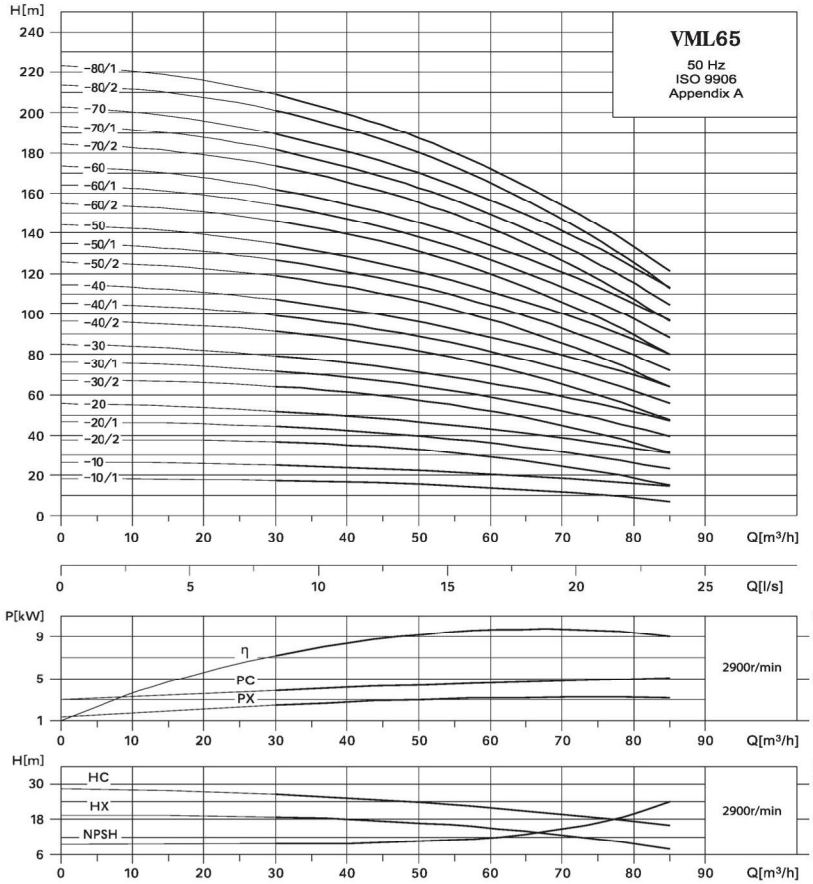
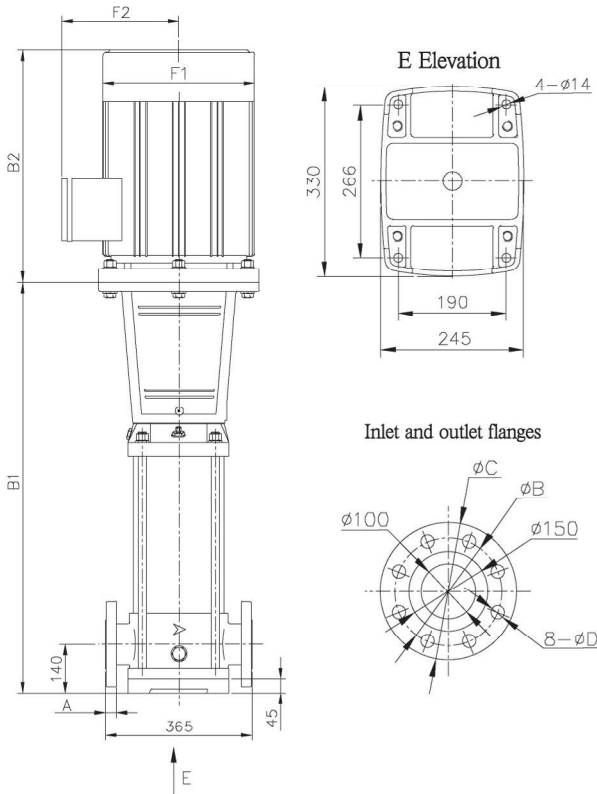
● Performance parameter (for reference only) and size table

Pump Model	Motor power (kW)	Flow rate (m³/h)	Head (m)									Size (mm)					Weight (kg)
			22	25	30	35	40	45	50	55	58	B1	B2	B1+B2	F1	F2	
VML45-10/1	3		18.5	18	17.5	16.5	15.5	14.5	12.5	11	9.5	507	337	844	196	150	75
VML45-10	4		22.5	22.5	21.5	20.5	19.5	18	16.5	14.5	13	507	350	357	214	169	80
VML45-20/2	5.5		37.5	37	35.5	34	32	29.5	26	22.5	20	587	383	970	257	190	100
VML45-20	7.5		46.5	45.5	44.5	42.5	40.5	37.5	34	29.5	27	587	383	970	257	190	104
VML45-30/2	11		62	61	59	56	53	49	44	37.5	33.5	762	505	1267	330	261	172
VML45-30	11		70	69	67	65	61	57	51	45	40.5	762	505	1267	330	261	172
VML45-40/2	15		86	85	82	79	74	69	62	53	47.5	842	505	1347	330	261	185
VML45-40	15		95	93	90	87	82	76	69	61	55	842	505	1347	330	261	185
VML45-50/2	18.5		110	109	105	101	95	88	79	69	62	922	560	1482	330	261	208
VML45-50	18.5		119	117	114	109	103	96	87	76	69	922	560	1482	330	261	208
VML45-60/2	22		135	133	128	123	116	108	97	84	76	1002	590	1592	380	280	248
VML45-60	22		143	141	137	132	125	116	105	92	83	1002	590	1592	380	280	248
VML45-70/2	30		159	157	152	146	138	127	115	100	90	1082	660	1742	420	314	306
VML45-70	30		168	166	161	154	146	135	123	108	97	1082	660	1742	420	314	306
VML45-80/2	30		184	181	175	168	159	147	133	116	104	1162	660	1822	420	314	309
VML45-80	30		193	190	184	177	167	155	141	123	112	1162	660	1822	420	314	309
VML45-90/2	30		208	205	199	191	180	167	151	132	119	1242	660	1902	420	314	312
VML45-90	37		217	214	208	199	189	175	159	139	126	1242	660	1902	420	314	335
VML45-100/2	37		233	230	223	213	202	187	169	147	133	1322	660	1982	420	314	338
VML45-100	37		242	239	232	222	210	195	177	155	140	1322	660	1982	420	314	338
VML45-110/2	45		258	254	246	236	223	207	187	163	147	1402	684	2086	470	335	402
VML45-110	45		267	263	255	245	232	215	195	171	155	1402	684	2086	470	335	396
VML45-120/2	45		283	279	270	259	245	227	205	179	162	1482	684	2166	470	335	399
VML45-120	45		292	288	279	268	253	235	213	187	169	1482	684	2166	470	335	399
VML45-130/2	45		308	303	294	282	267	247	224	195	176	1562	684	2246	470	335	403

DIMENSIONS VML65

Performance Curve

● Installation sketch



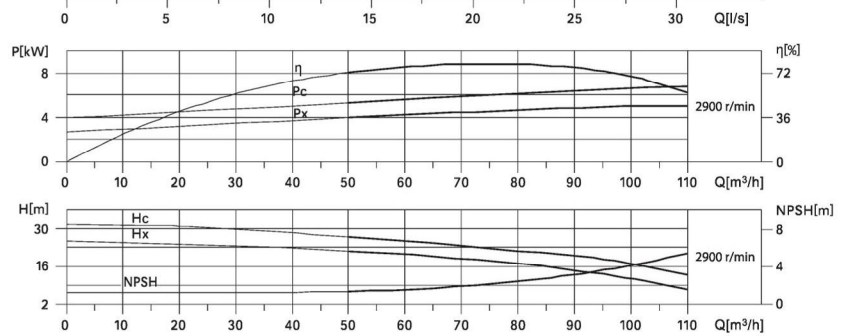
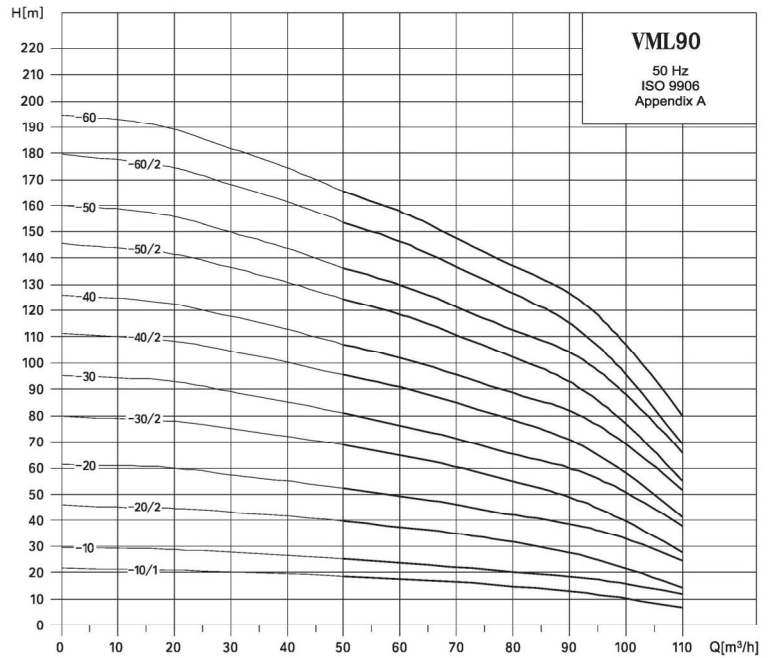
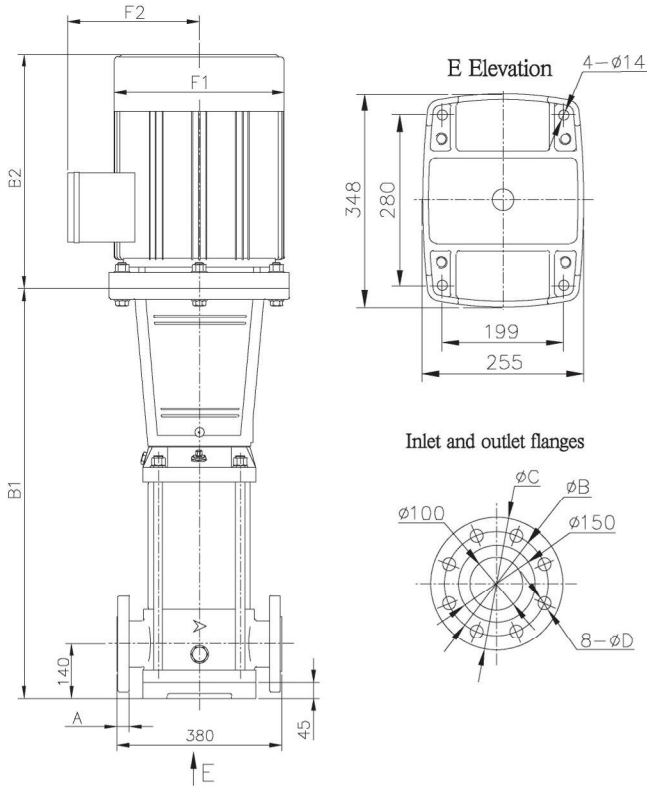
● Performance parameter (for reference only) and size table

Pump model	motor (kW)	flow (m³/h)	Head (m)								Size (mm)								weight (kg)	
			30	40	50	60	64	70	80	85	B1	B2	B1+B2	F1	F2	A	B	C		D
VML65-10/1	4		17.5	16.5	15.5	14	13	11.5	9	7	522	350	872	214	169	26	180	220	18	86
VML65-10	5.5		25	23.5	22.5	22.5	19.5	18.5	16	15	522	383	905	257	190	26	180	220	18	101
VML65-20/2	7.5		36.5	35	32.5	29.5	27.5	24.5	18.5	15	605	383	988	257	190	26	180	220	18	109
VML65-20/1	11		44.5	42.5	39.5	36	34.5	31.5	26	23	700	505	1205	330	261	26	180	220	18	175
VML65-20	11		52	49.5	46.5	43	41.5	38.5	33.5	31	700	505	1205	330	261	26	180	220	18	175
VML65-30/2	15		64	61	57	52	49.5	45	36.5	31	783	505	1288	330	261	26	180	220	18	189
VML65-30/1	15		72	69	64	59	56	52	44	39.5	783	505	1288	330	261	26	180	220	18	189
VML65-30	18.5		80	76	71	66	63	59	52	47.5	783	560	1343	330	261	26	180	220	18	209
VML65-40/2	18.5		92	88	82	75	71	65	54	47.5	866	560	1426	330	261	26	180	220	18	213
VML65-40/1	22		100	95	89	82	78	73	62	56	866	590	1456	380	280	26	180	220	18	250
VML65-40	22		107	102	96	89	85	80	70	64	866	590	1456	380	280	26	180	220	18	250
VML65-50/2	30		119	114	107	97	93	86	72	64	949	660	1609	420	314	26	180	220	18	310
VML65-50/1	30		127	121	114	104	100	93	80	72	949	660	1609	420	314	26	180	220	18	310
VML65-50	30		135	129	121	112	107	100	88	80	949	660	1609	420	314	26	180	220	18	310
VML65-60/2	30		147	140	131	120	115	106	90	80	1032	660	1692	420	314	28	190	235	22	314
VML65-60/1	37		155	147	139	127	122	114	98	89	1032	660	1692	420	314	28	190	235	22	337
VML65-60	37		163	155	146	134	129	112	106	97	1032	660	1692	420	314	28	190	235	22	337
VML65-70/2	37		174	166	156	143	137	127	108	97	1115	660	1775	420	314	28	190	235	22	341
VML65-70/1	37		182	174	163	150	144	134	116	105	1115	660	1775	420	314	28	190	235	22	341
VML65-70	37		190	181	171	157	151	142	124	113	1115	684	1799	470	335	28	190	235	22	396
VML65-80/2	37		202	192	181	166	159	147	126	113	1198	684	1882	470	335	28	190	235	22	400
VML65-80/1	37		210	200	188	173	166	155	134	121	1198	684	1882	470	335	28	190	235	22	400

DIMENSIONS VML90

Performance Curve

● Installation sketch

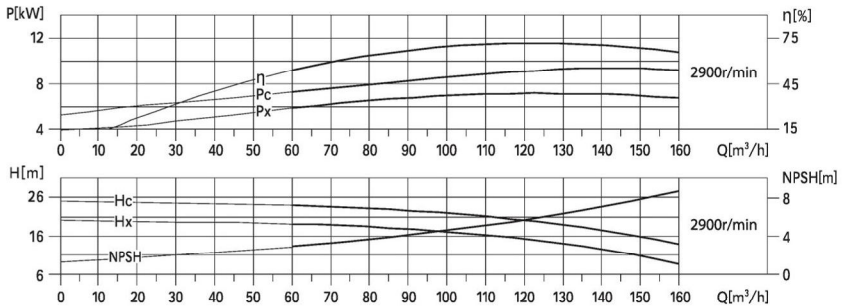
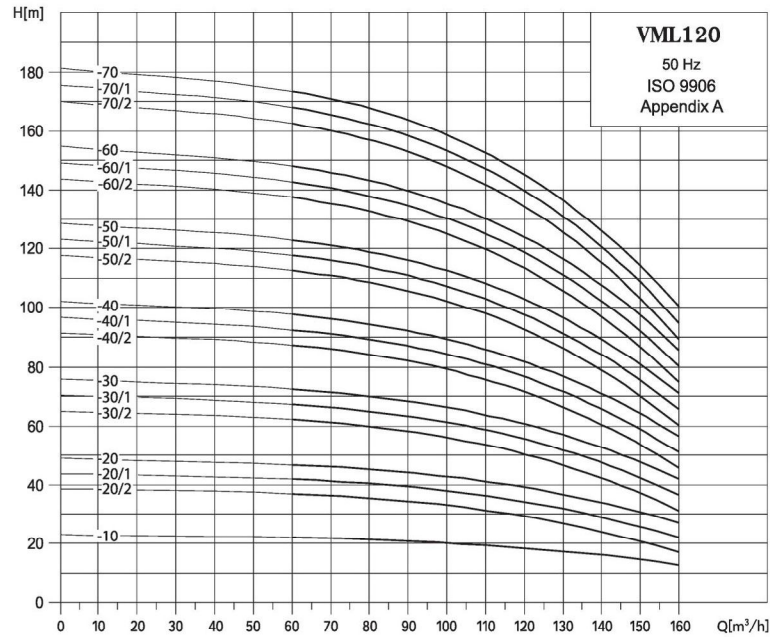
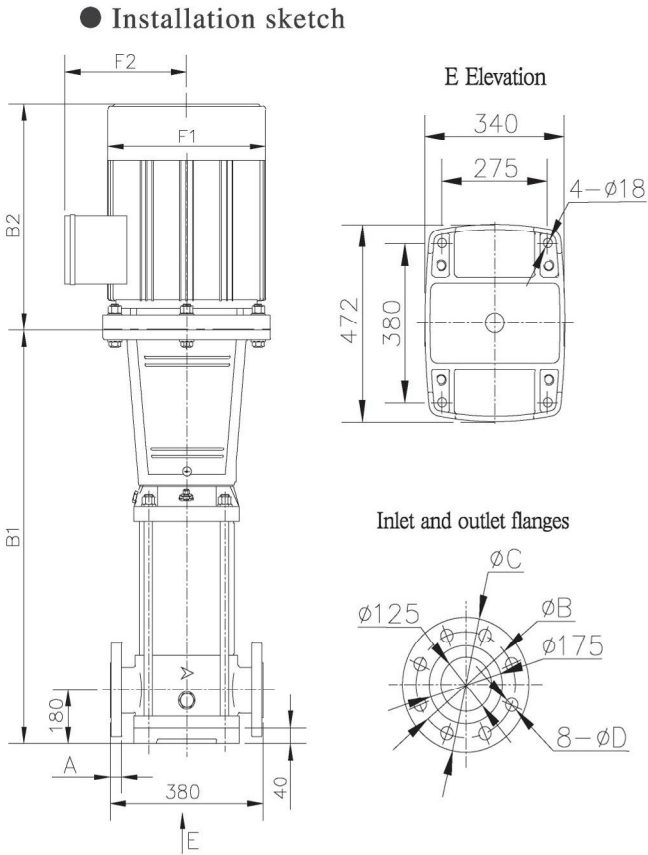


● Performance parameter (for reference only) and size table

Pump Model	Motor power (kW)	Flow rate (m³/h)	Size (mm)																Weight (kg)
			50	60	70	80	90	100	110	B1	B2	B1+B2	F1	F2	A	B	C	D	
VML90-10/1	5.5	Head (m)	19	18	16	15	13	10	6.5	527	383	910	257	190	24	180	220	18	98
VML90-10	7.5		25	24.5	22	20.5	18.5	15.5	11.5	527	383	910	257	190	24	180	220	18	102
VML90-20/2	11		40	39	35	32	27.5	21.5	14	714	505	1219	330	261	24	180	220	18	176
VML90-20	15		52	51	46	43.5	38.5	32.5	24.5	714	505	1219	330	261	24	180	220	18	186
VML90-30/2	18.5		69	67	60	56	49	39.5	27.5	806	560	1366	330	261	24	180	220	18	213
VML90-30	22		81	79	71	67	60	51	38	806	590	1396	380	280	24	180	220	18	250
VML90-40/2	30		95	97	85	81	71	58	41	898	660	1558	420	314	24	180	220	18	313
VML90-40	30		107	108	95	92	82	69	52	898	660	1558	420	314	24	180	220	18	313
VML90-50/2	37		124	126	111	106	93	77	55	990	660	1650	420	314	28	190	235	22	344
VML90-50	37		136	138	121	117	104	88	66	990	660	1650	420	314	28	190	235	22	344
VML90-60/2	45		154	155	137	131	115	95	69	1082	684	1766	470	335	28	190	235	22	406
VML90-60	45		166	168	147	142	126	107	80	1082	684	1766	470	335	28	190	235	22	406

DIMENSIONS VML120

Performance Curve

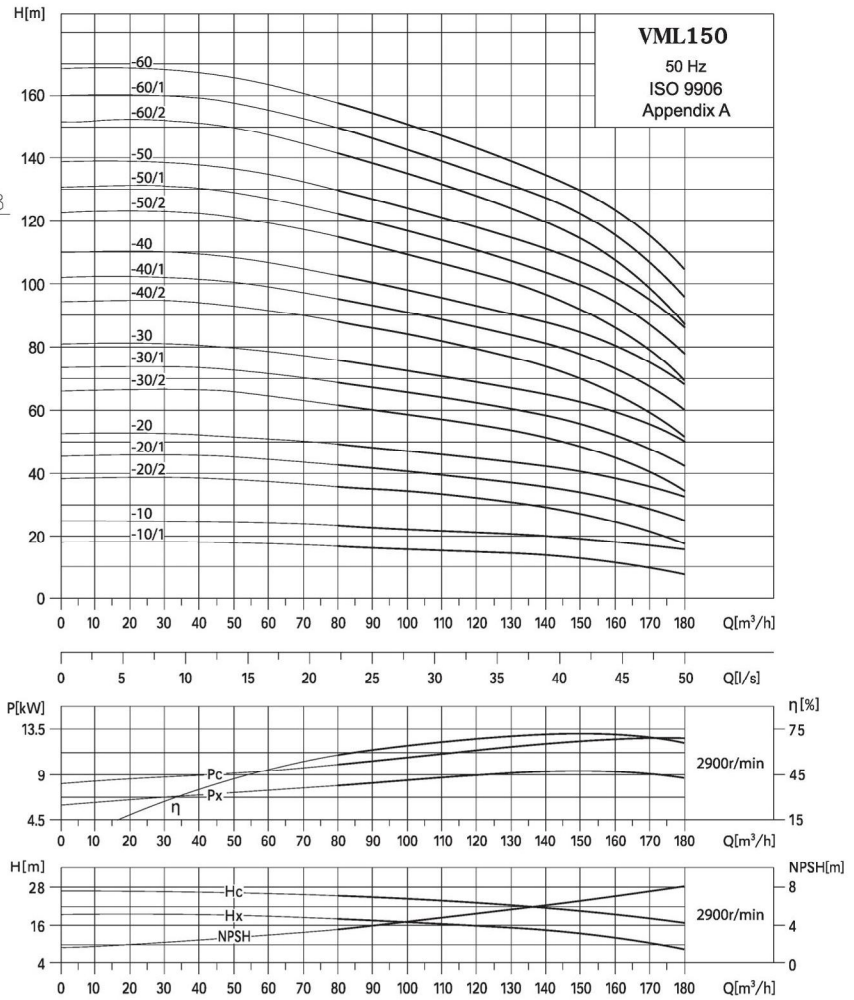
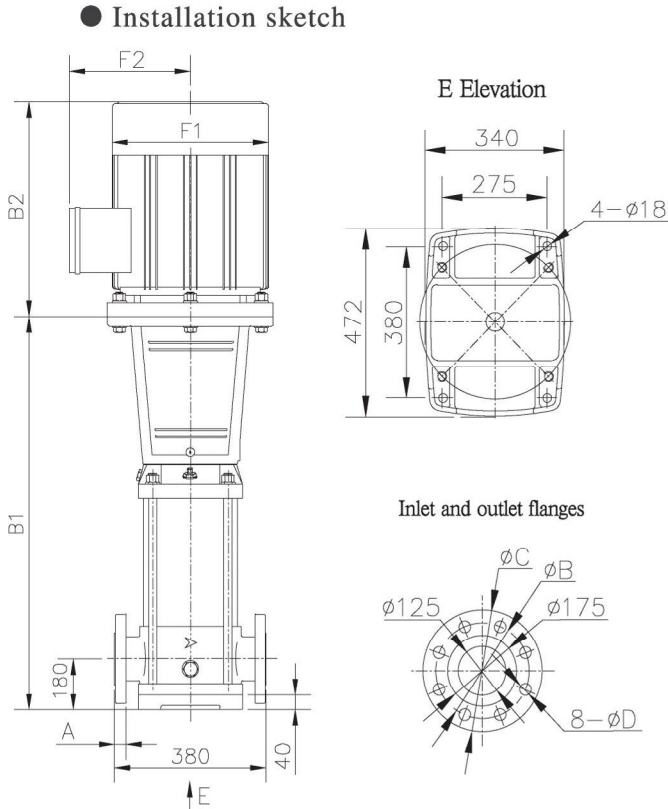


● Performance parameter (for reference only) and size table

Pump model	motor (kW)	flow (m³/h)	Head (m)												Size (mm)								weight (kg)
			60	70	80	90	100	110	120	130	140	150	160	B1	B2	B1+B2	F1	F2	A	B	C	D	
VML120-10	11		22	21.5	21	20.5	20	19	18.5	17	16	14.5	12.5	786	505	1291	330	261	23	210	250	18	225
VML120-20/2	15		37	36.5	35.5	34.5	33	31.5	29.5	27	24	20.5	16.5	946	505	1451	330	261	23	210	250	18	241
VML120-20/1	18.5		42	41	40.5	39	38	36	34	32	29	25.5	22	946	560	1506	330	261	23	210	250	18	246
VML120-20	22		46.5	46	45	44	43	41	39	36.5	34	30.5	27	946	590	1536	380	280	23	210	250	18	281
VML120-30/2	30		62	61	60	58	56	54	50	46.5	42	37	31	1106	660	1766	420	314	23	210	250	18	357
VML120-30/1	30		67	66	65	63	61	59	56	52	47.5	42.5	36.5	1106	660	1766	420	314	23	210	250	18	357
VML120-30	30		72	71	70	68	66	64	61	57	53	47.5	42	1106	660	1766	420	314	23	210	250	18	357
VML120-40/2	37		87	86	84	82	79	76	71	66	61	54	45.5	1266	660	1926	420	314	23	210	250	18	399
VML120-40/1	37		92	91	89	87	84	81	77	72	66	59	51	1266	660	1926	420	314	23	210	250	18	399
VML120-40	45		98	96	94	92	89	86	82	77	71	64	56	1266	694	1960	470	335	23	210	250	18	459
VML120-50/2	45		113	111	109	106	102	98	93	86	79	70	60	1426	694	2120	470	335	23	210	250	18	472
VML120-50/1	45		118	116	114	111	107	103	98	91	84	76	66	1426	694	2120	470	335	23	210	250	18	472
VML120-50	55		123	121	119	116	112	108	103	97	89	81	71	1476	780	2256	510	370	23	210	250	18	577
VML120-60/2	55		137	135	133	129	125	120	113	106	97	87	75	1636	780	2416	510	370	23	210	250	18	590
VML120-60/1	55		143	141	138	135	130	125	119	111	102	92	80	1656	780	2436	510	370	23	210	250	18	590
VML120-60	75		148	146	143	140	135	130	124	116	108	97	86	1656	831	2487	547	407	23	210	250	18	710
VML120-70/2	75		163	160	157	153	148	142	134	126	115	103	89	1816	831	2647	547	407	29	220	270	26	725
VML120-70/1	75		168	166	162	158	153	147	140	131	121	109	95	1816	831	2647	547	407	29	220	270	26	725
VML120-70	75		173	171	168	164	159	153	145	136	126	114	100	1816	831	2647	547	407	29	220	270	26	725

DIMENSIONS VML150

Performance Curve

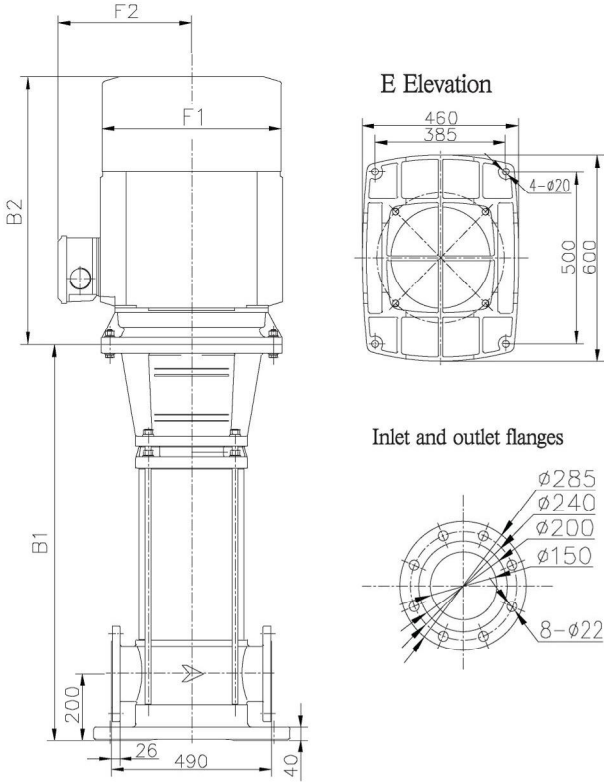


● Performance parameter (for reference only) and size table

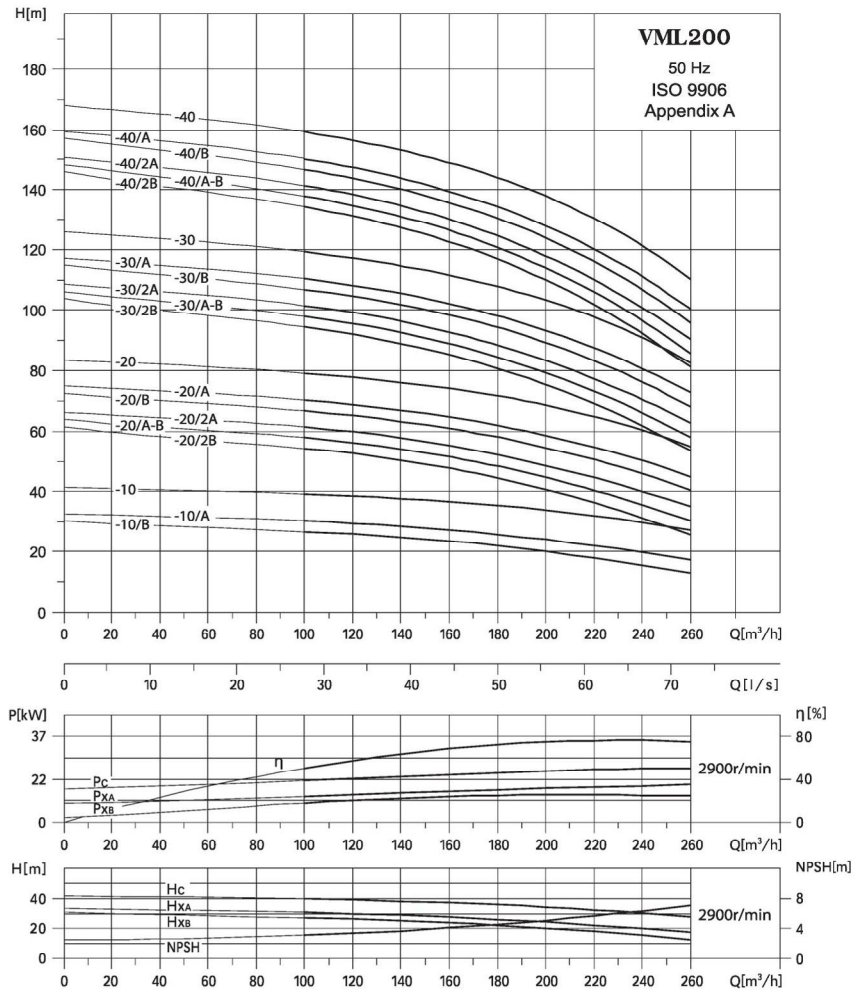
Pump Model	Motor power (kW)	Flow rate (m³/h)	Head (m)												Size (mm)								Weight (kg)
			80	90	100	110	120	130	140	150	160	170	180	B1	B2	B1+B2	F1	F2	A	B	C	D	
VML150-10/1	11		16.5	16	15.5	15.5	15	14.5	13.5	12.5	11.5	10	8	786	505	1291	330	261	23	210	250	18	225
VML150-10	15		23	22.5	22	21.5	21	20.5	19.5	19	18	17	15	786	505	1291	330	261	23	210	250	18	230
VML150-20/2	18.5		35.5	34.5	33.5	33	32	30.5	29	27	24.5	21	17	946	560	1506	330	261	23	210	250	18	247
VML150-20/1	22		42.5	41.5	40.5	39.5	38	37	35.5	33.5	31.5	28.5	25	946	590	1536	380	280	23	210	250	18	292
VML150-20	30		49	48	47	45.5	44.5	43.5	42	40.5	38.5	36	32.5	946	660	1606	420	314	23	210	250	18	347
VML150-30/2	30		62	60	59	57	55	54	51	48.5	44.5	40	34	1106	660	1766	420	314	23	210	250	18	361
VML150-30/1	37		69	67	66	64	62	60	58	56	52	48	42	1106	660	1766	420	314	23	210	250	18	361
VML150-30	37	Head (m)	76	74	72	71	69	67	65	62	60	56	50	1106	660	1766	420	314	23	210	250	18	386
VML150-40/2	45		88	86	84	82	79	77	74	70	65	59	52	1266	694	1960	470	335	23	210	250	18	462
VML150-40/1	45		95	93	91	89	86	84	81	77	73	67	60	1266	694	1960	470	335	23	210	250	18	462
VML150-40	55		103	101	98	96	93	91	88	85	81	75	68	1316	780	2096	510	370	23	210	250	18	562
VML150-50/2	55		115	112	109	106	103	100	97	92	86	79	69	1476	780	2256	510	370	23	210	250	18	575
VML150-50/1	75		122	119	117	114	111	108	104	100	94	87	78	1476	831	2307	547	407	23	210	250	18	695
VML150-50	75		130	127	124	121	118	115	111	107	102	95	86	1476	831	2307	547	407	23	210	250	18	695
VML150-60/2	75		142	138	135	132	128	124	120	114	108	99	87	1656	831	2487	547	407	29	220	270	26	710
VML150-60/1	75		149	146	143	139	136	132	127	122	116	107	96	1656	831	2487	547	407	29	220	270	26	710
VML150-60	75		157	154	150	147	143	139	135	130	124	115	104	1656	831	2487	547	407	29	220	270	26	710

DIMENSIONS VML200

● Installation sketch



Performance Curve



● Performance parameter (for reference only) and size table

Pump model	motor (kW)	flow (m³/h)	Head (m)										Size (mm)					weight (kg)
			100	120	140	160	180	200	220	240	260	B1	B2	B1+B2	F1	F2		
VML200-10/B	18.5	26.5	26	24.5	23.5	22	20	18	15.5	12.5	855	560	1415	330	261	323		
VML200-10/A	22	30	29.5	28.5	27	25.5	24	22	19.5	17	855	590	1445	380	280	359		
VML200-10	30	39	38.5	37.5	36.5	35.5	34	32	30	27	855	660	1515	420	314	415		
VML200-20/2B	37	54	53	50	47.5	44.5	40.5	36.5	31.5	25.5	1049	660	1709	420	314	459		
VML200-20/A-B	45	58	56	54	52	48.5	44.5	40.5	35.5	30.5	1049	694	1743	470	335	516		
VML200-20/2A	45	62	60	58	55	52	48.5	44.5	40	35	1049	694	1743	470	335	516		
VML200-20/B	45	67	65	63	61	58	55	51	46	40.5	1049	694	1743	470	335	516		
VML200-20/A	55	70	69	67	65	62	59	55	50	45	1099	780	1879	510	370	607		
VML200-20	55	79	78	76	74	72	69	65	60	55	1099	780	1879	510	370	607		
VML200-30/2B	75	95	92	89	85	81	75	69	62	54	1293	831	2124	547	407	760		
VMI 200-30/A-B	75	98	96	93	89	85	79	73	66	58	1293	831	2124	547	407	760		
VML200-30/2A	75	102	99	96	93	89	83	77	71	63	1293	831	2124	547	407	760		
VML200-30/B	75	107	105	102	99	94	89	84	76	68	1293	831	2124	547	407	760		
VML200-30/A	75	111	108	106	102	98	93	88	81	73	1293	831	2124	547	407	760		
VML200-30	90	119	117	115	112	108	103	98	91	83	1293	882	2175	547	407	829		
VML200-40/2B	90	134	131	127	123	117	110	102	92	81	1487	882	2369	547	407	842		
VML200-40/A-B	90	138	135	131	126	121	114	106	97	86	1487	882	2369	547	407	842		
VML200-40/2A	110	142	139	135	130	125	118	110	101	91	1487	1020	2507	645	530	1192		
VML200-40/B	110	147	144	140	136	131	124	116	107	96	1487	1020	2507	645	530	1192		
VML200-40/A	110	150	148	144	140	134	128	120	111	100	1487	1020	2507	645	530	1192		
VML200-40	110	159	157	153	149	144	138	131	121	110	1487	1020	2507	645	530	1192		