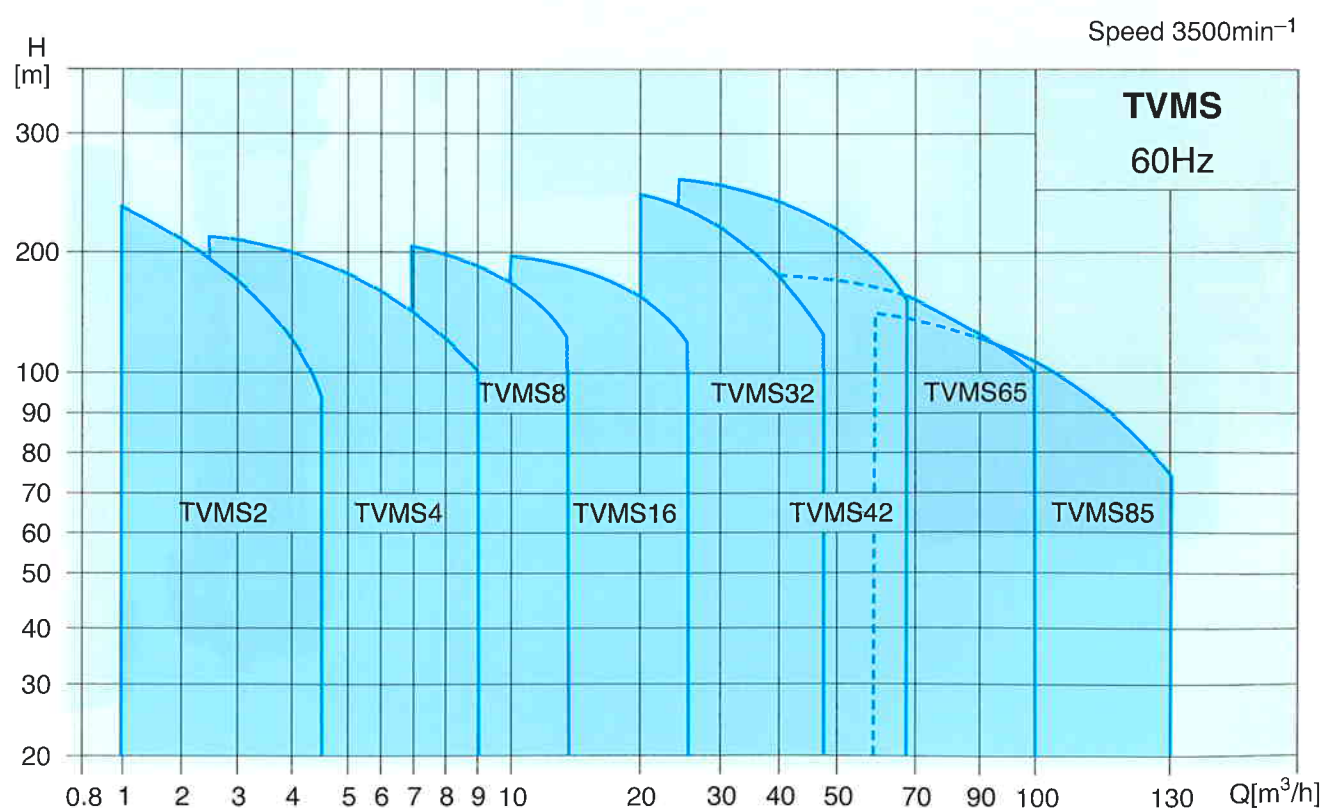
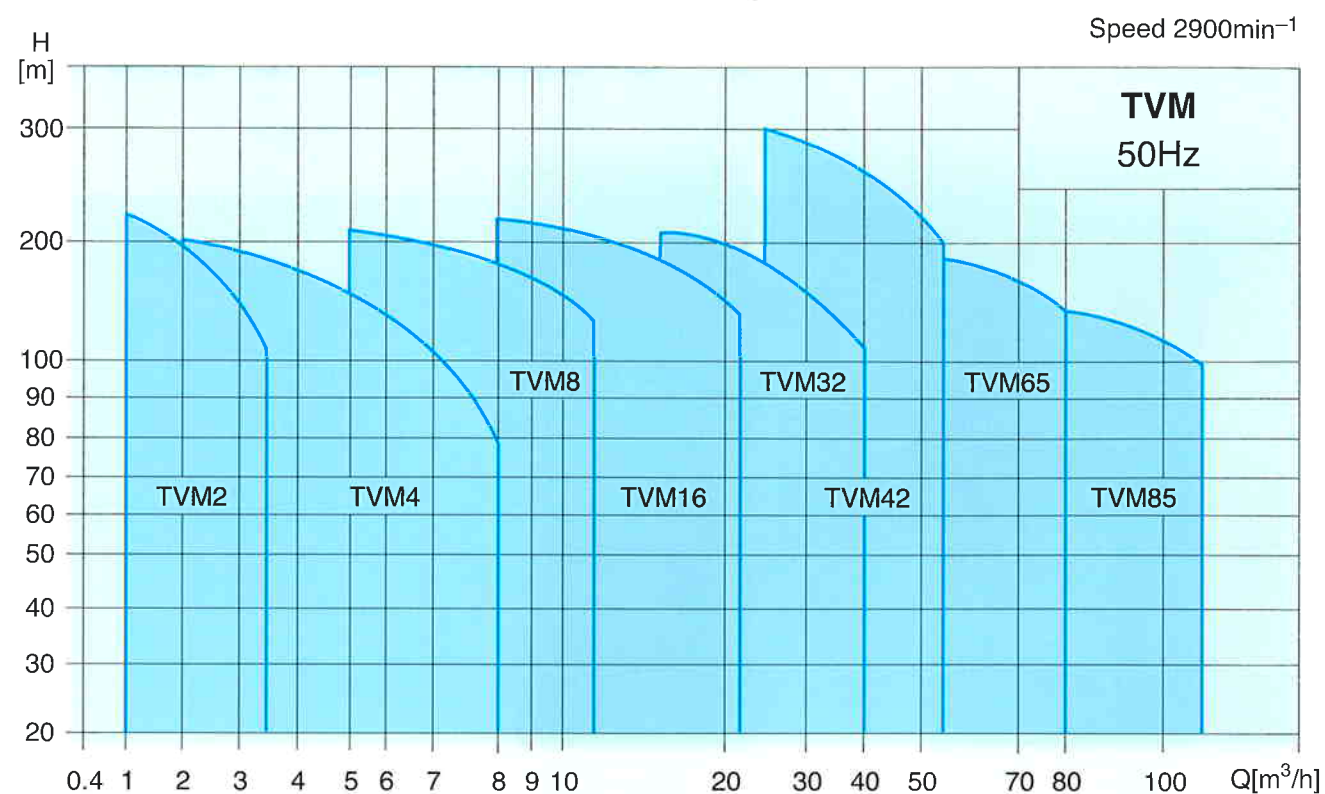


Selection charts



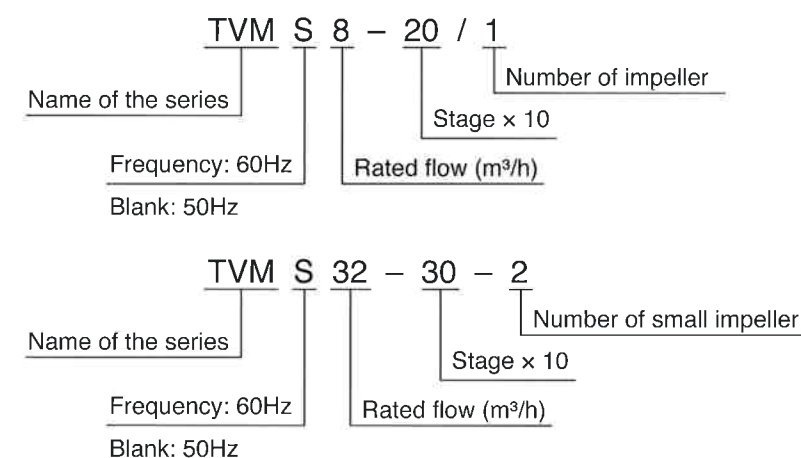
Features

- The most appropriate model can be selected for the service condition from the wide variations of power output.
50Hz) 0.37 ~ 45kW 60Hz) 0.55 ~ 45kW
- Standard specification : Corresponding to the temperatures of 0 to 70°C.
- High temperature specification : Corresponding to the temperatures of 70 to 120°C with option.
- The major wetted part is made of S.S. 304 (optional S.S. 316 also available) that prevents rusty water from occurring in pump materials.
- Mechanical seals are employed for the shaft seal part to reduce the running cost and maintenance cost.
- This is the inline type that can be installed between pipes, which requires smaller footprint.

Applications

- For cool and hot water circulation
- For supply and distribution of industrial water
- For irrigation of rice paddy and dry field

Model Number Designation



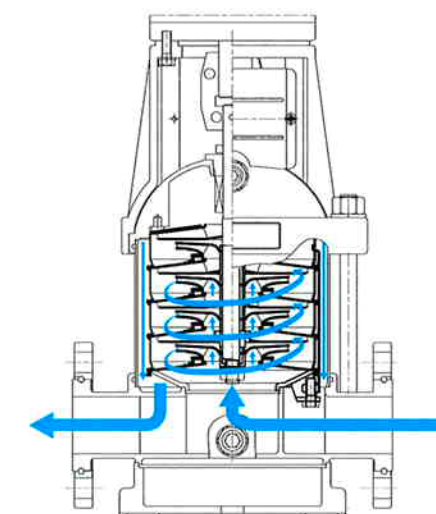
Major Standard Specifications

Items		Suction x Discharge Bore		25 x 25	32 x 32	40 x 40	50 x 50	65 x 65	80 x 80	100 x 100
Pumping	Type of Liquid		Industrial water, agricultural water							
Liquid	Liquid Temperature		0 to 70 °C							
Pump	Parts	Impeller	Closed impeller							
		Shaft Seal	Mechanical seal							
		Bearing	Ball bearing (11kW and below), Roller bearing (15kW and above)							
	Materials	Impeller	Stainless steel 304							
		Casing	Stainless steel 304							
		Shaft	Stainless steel 304 316							
Shaft Seal		Tungsten carbide + Graphite								
Motor	Type, poles		Full-enclosed air-blast standard motor, 2-pole							
	International protection		IP55							
	Class of Insulation		Class F							
	Phase / Voltage		Single-phase/ 110V, 220V,230V,240V(Up to 2.2kW) Three-phase/ 220V,380V,400V,415V,440V,460V							
	Material	Frame	Aluminum die casting (7.5kW and below) Gray iron casting (11kW and above)							
Starting method			D.O.L. (7.5kW and below) Star-Delta (11kW and above)							
Discharge connection			DIN flange (optional Victaulic connection also available up to DN50)							

Sample picture

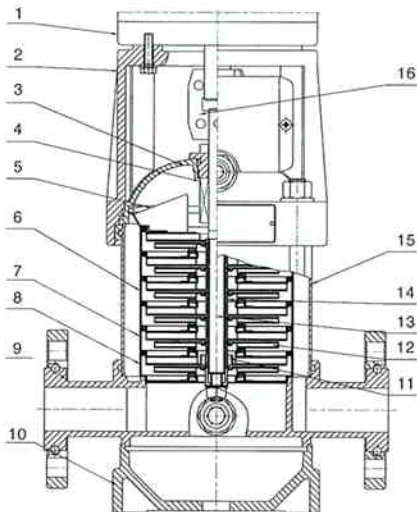


Water flow in the main unit (Image)

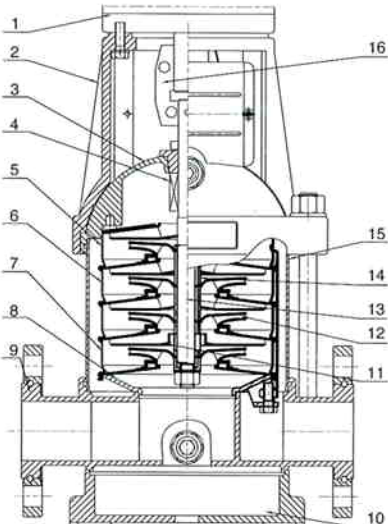


Cross-sectional drawing

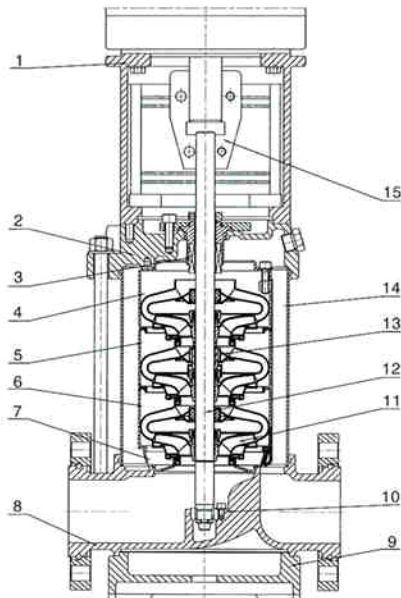
TVM2,4
TVMS2,4



TVM8,16
TVMS8,16



TVM32,42,65,85
TVMS32,42,65,85



TVM2,4,8,16
TVMS2,4,8,16

Item No.	Name	Material
1	Electric motor	
2	Pump head	Gray iron casting
3	Seal base	Stainless steel 304
4	Mechanical seal	Tungsten carbide/Graphite
5	Water-out guide vane	Stainless steel 304
6	Guide vane	Stainless steel 304
7	Support guide vane	Stainless steel 304
8	Inducer	Stainless steel 304
9	Inlet & outlet section	Stainless steel 304
10	Base frame	Gray iron casting
11	Bearing	Tungsten carbide
12	Impeller	Stainless steel 304
13	Shaft	Stainless steel 316
14	Spacer	Stainless steel 304
15	Pressure-resistant cylinder	Stainless steel 304
16	Coupling	Carbon steel

TVM32,42,65,85
TVMS32,42,65,85

Item No.	Name	Material
1	Bracket	Gray iron casting
2	Pump head	Gray iron casting
3	Mechanical seal	Tungsten carbide/Graphite
4	Water-out guide vane	Stainless steel 304
5	Support guide vane	Stainless steel 304
6	Guide vane	Stainless steel 304
7	Inducer	Stainless steel 304
8	Inlet & outlet section	Gray iron casting
9	Base frame	Gray iron casting
10	Bottom bearing	Tungsten carbide
11	Impeller	Stainless steel 304
12	Shaft	Stainless steel 316
13	Intermediate-shaft sleeve	Tungsten carbide
14	Pressure-resistant cylinder	Stainless steel 304
15	Coupling	Carbon steel
	Rubber parts	EPDM

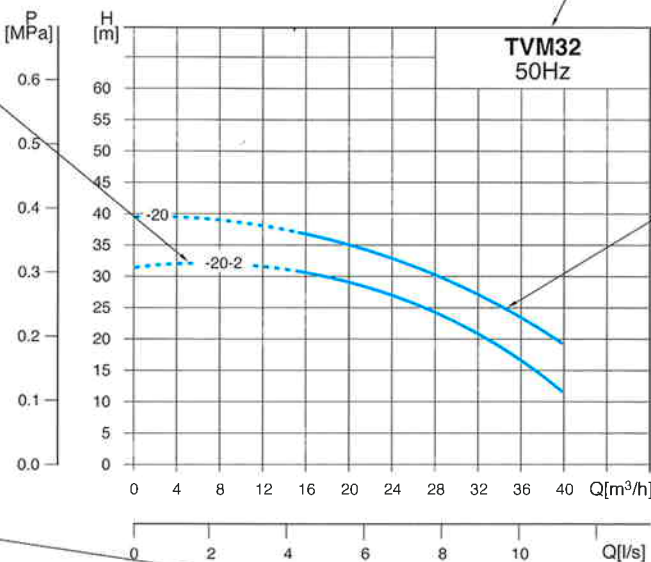
How to read the curves

Curves on this page are for guidance only.
Refer to the performance curves on each model.

Model and frequency of pump

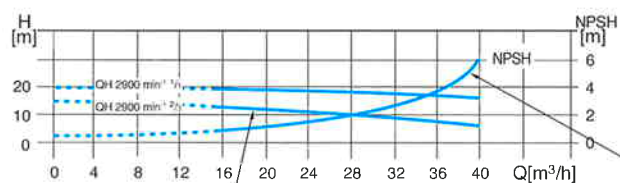
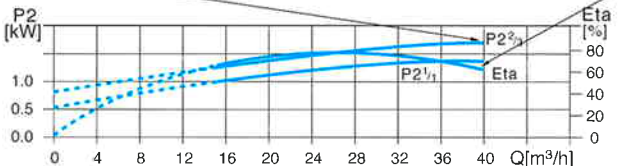
Stage
First number:
Stage × 10
Second number:
Number of small
impeller

The power curve
presents the input
power of each stage,
which is divided into
integrate impeller
type (1/1) and the
type with small
impeller (2/3)



Pump Q-H curve, the
thickened line presents
recommended
performance region

Eta curve presents
efficiency of the
pump. For the pump
equipped with small
impeller, its
efficiency will be 2%
lower than that
shown by the curve.



NPSH curve expresses
the average value of all
curves of this series. A
safety margin of 0.5m
shall be taken into
consideration when
making selection.

The Q-H curve of each stage, presenting integrate impeller type (1/1) and the type equipped with small impeller (2/3).

Performance curve

Following conditions are applied to the performance curves shown in this catalogue:

- 1. All the performance curves are based on the measured values of a motor at a constant speed of 2900 min⁻¹ for 50Hz and 3500 min⁻¹ for 60Hz.
- 2. Curve tolerance in conformity with ISO9906, appendix A.

- 3. Measurement is done with 20°C air-free water, kinematic viscosity of 1mm²/sec.
- 4. The operation of pump shall refer to the performance region indicated by the solid line to prevent overheating due to too small flow rate or overload of motor due to too large flow rate.

Max inlet pressure (50HZ)

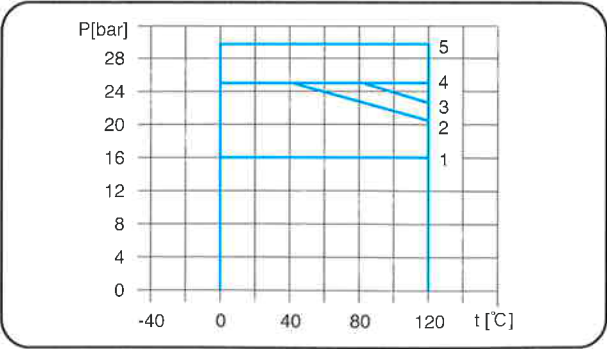
The maximum inlet pressure is shown in the table below. But the actual inlet pressure plus the valve close pressure of the pump shall be lower than the maximum allowable working pressure.

Model	Max inlet pressure
TVM2	
2-20	6[bar]
2-30 ~ 2-110	10[bar]
2-130 ~ 2-260	15[bar]
TVM4	
4-20	6[bar]
4-30 ~ 4-100	10[bar]
4-120 ~ 4-220	15[bar]
TVM8	
8-20/1 ~ 8-60	6[bar]
8-80 ~ 8-200	10[bar]
TVM16	
16-20 ~ 16-30	6[bar]
16-40 ~ 16-160	10[bar]
TVM32	
32-10-1 ~ 32-20-2	3[bar]
32-20 ~ 32-40	4[bar]
32-50-2 ~ 32-100	10[bar]
32-110-2 ~ 32-140	15[bar]
TVM42	
42-10-1	3[bar]
42-10 ~ 42-20	4[bar]
42-30-2 ~ 42-50	10[bar]
42-60-2 ~ 42-130-2	15[bar]
TVM65	
65-10-1 ~ 65-20-2	4[bar]
65-20-1 ~ 65-30	10[bar]
65-40-2 ~ 65-80-1	15[bar]
TVM85	
85-10-1 ~ 85-10	4[bar]
85-20-2 ~ 85-30-2	10[bar]
85-30-1 ~ 85-60	15[bar]

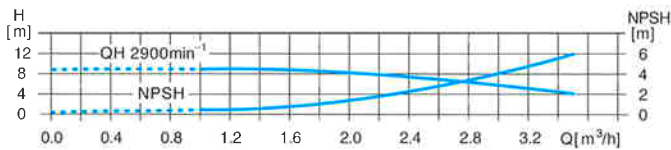
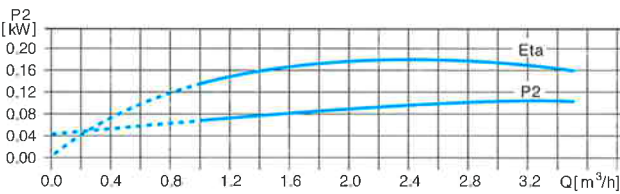
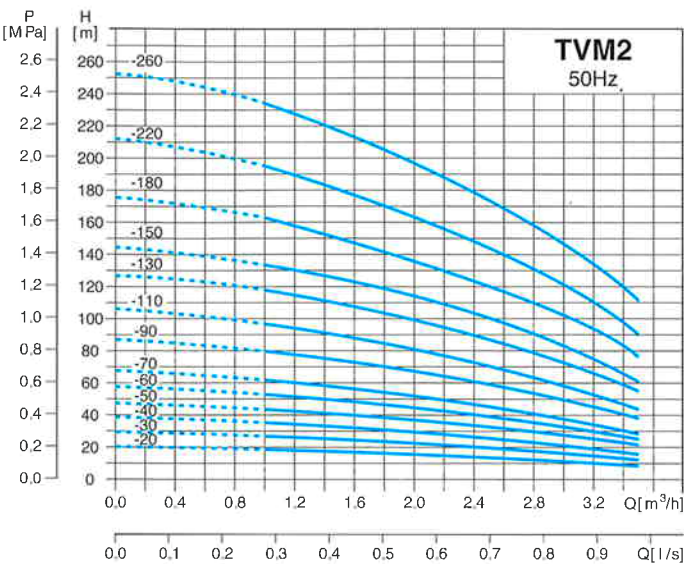
Max working pressure (50HZ)

Model	Curve number
TVM2	
2-20 ~ 2-150	1
2-180 ~ 2-260	2
TVM4	
4-20 ~ 4-160	1
4-190 ~ 4-220	2
TVM8	
8-20/1 ~ 8-120	1
8-140 ~ 8-200	3
TVM16	
16-20 ~ 16-80	1
16-100 ~ 16-160	3
TVM32	
32-10-1 ~ 32-70	1
32-80-2 ~ 32-120	4
32-130 ~ 32-140	5
TVM42	
42-10-1 ~ 42-60	1
42-70-2 ~ 42-90	4
42-100-2 ~ 42-130-2	5
TVM65	
65-10-1 ~ 65-50	1
65-60-2 ~ 65-80-1	4
TVM85	
85-10-1 ~ 85-50-2	1
85-50 ~ 85-60	4

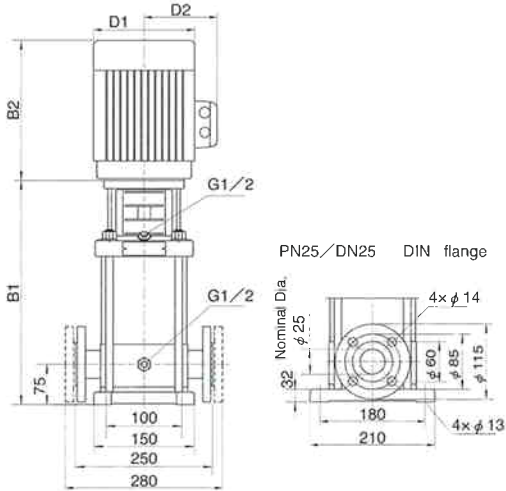
The following figure shows the limitation of pressure and temperature, which shall be kept within the region as shown in the figure.



Performance curve



Dimensions

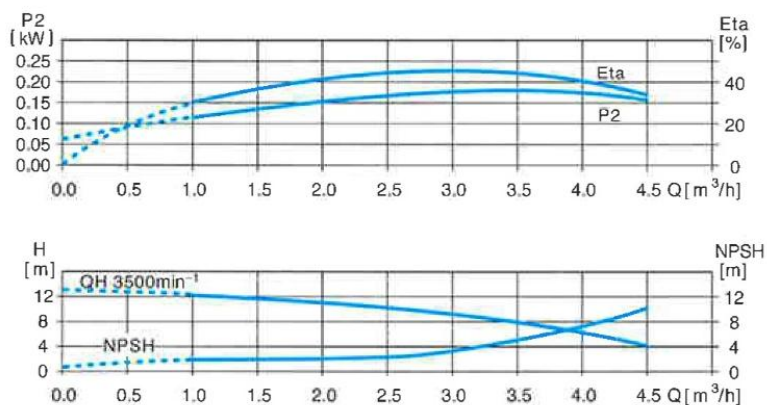
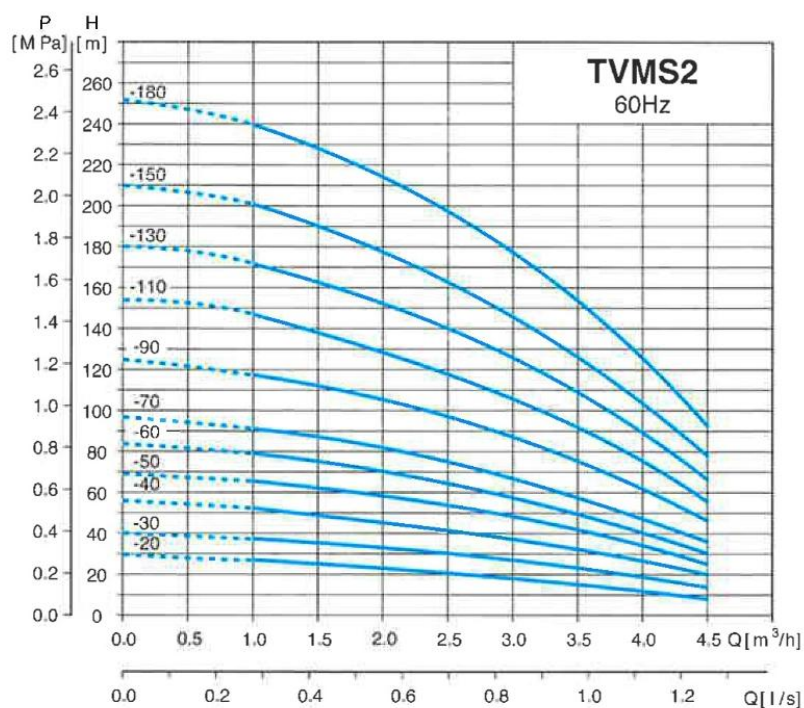


Model	Size(mm)					Weight (kg)
	B1	B2	B1+B2	D1	D2	
TVM2-20	233	210	443	148	117	20
TVM2-30	251	210	461	148	117	20
TVM2-40	269	210	479	148	117	20
TVM2-50	287	210	497	148	117	20
TVM2-60	315	245	560	170	142	25
TVM2-70	333	245	578	170	142	25
TVM2-90	369	245	614	170	142	30
TVM2-110	405	245	650	170	142	30
TVM2-130	451	290	741	190	155	35
TVM2-150	487	290	777	190	155	35
TVM2-180	541	290	831	190	155	40
TVM2-220	613	290	903	190	155	45
TVM2-260	695	315	1010	197	165	50

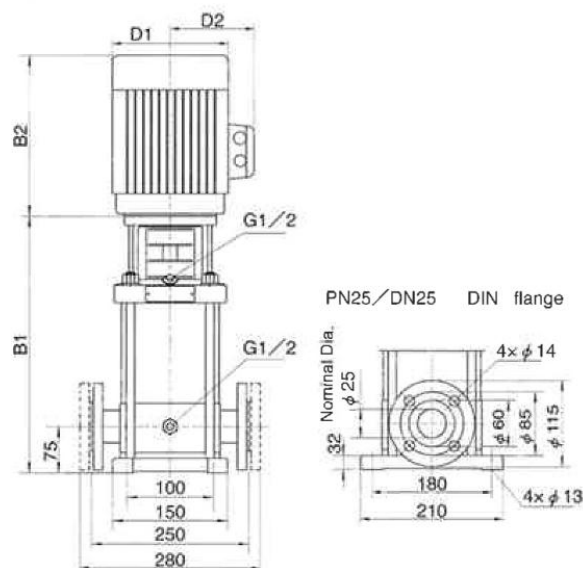
Performance table

Model	Power (kW)	Q (m³/h)	1	1.2	1.6	2.0	2.4	2.8	3.2	3.5
TVM2-20	0.37	H (m)	18	17	16	15	13	12	10	8
TVM2-30	0.37		27	26	24	22	20	18	15	12
TVM2-40	0.55		36	35	33	30	26	24	20	16
TVM2-50	0.55		45	43	40	37	33	30	24	20
TVM2-60	0.75		53	52	50	45	40	36	30	24
TVM2-70	0.75		63	61	57	52	47	41	35	28
TVM2-90	1.1		80	78	73	67	61	54	45	37
TVM2-110	1.1		98	95	89	82	73	64	54	44
TVM2-130	1.5		116	114	106	98	89	78	65	52
TVM2-150	1.5		134	130	123	112	100	90	73	60
TVM2-180	2.2		161	157	148	136	121	108	91	76
TVM2-220	2.2		197	192	180	165	148	130	110	90
TVM2-260	3.0		232	228	214	198	179	158	130	110

Performance curve



Dimensions



Model	Size(mm)					Weight (kg)
	B1	B2	B1+B2	D1	D2	
TVMS2-20	233	210	443	148	117	20
TVMS2-30	261	245	506	170	142	20
TVMS2-40	279	245	524	170	142	25
TVMS2-50	297	245	542	170	142	25
TVMS2-60	315	245	560	170	142	25
TVMS2-70	343	290	633	170	155	30
TVMS2-90	379	290	669	190	155	35
TVMS2-110	415	290	705	190	155	35
TVMS2-130	461	315	776	197	165	40
TVMS2-150	497	315	812	197	165	40
TVMS2-180	551	335	886	230	185	45

Performance table

Model	Power (kW)	Q (m³/h)	1	1.5	2	2.5	3	3.5	4	4.5
TVMS2-20	0.55	H (m)	26	24	22	21	19	16	12	9
TVMS2-30	0.75		39	36	34	31	27	24	19	15
TVMS2-40	1.1		52	48	45	42	36	32	26	20
TVMS2-50	1.1		65	61	57	52	46	41	33	25
TVMS2-60	1.1		78	74	69	63	56	49	40	30
TVMS2-70	1.5		92	86	81	74	66	57	47	35
TVMS2-90	2.2		118	111	104	95	86	76	61	45
TVMS2-110	2.2		144	137	128	117	106	91	75	55
TVMS2-130	3		271	163	152	139	126	108	90	66
TVMS2-150	3		198	188	176	161	146	125	104	77
TVMS2-180	4		238	228	212	195	175	151	126	94

