



# Horizontal end suction centrifugal pump

FS-Series

# 50Hz



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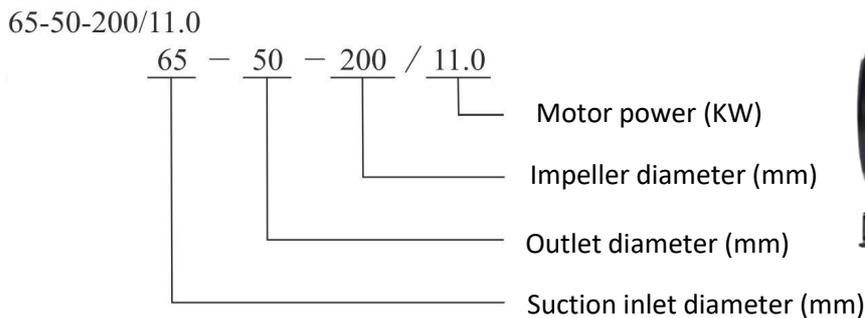
Introduction	3
Model meaning	3
Application	3
Installation	3
Performance range	4
Performance	5
Minimum inlet pressure - NPSH	6
Curve condition	7
Operating Condition	7
Motor	7
Cross-sectional drawing	8
Part material	8
Installation Figure	9
Size and	9
FS50-32-***	11
FS65-40-***	12
FS65-50-***	13
FS85-65-***	14
FS100-80-***	15

## Introduction

The FS type stainless steel horizontal single-stage centrifugal pump is made by advanced processes such as stamping, bulging and welding of stainless steel plates. It is the first of its kind in China and represents a new generation of centrifugal pumps.

It can replace the traditional IS pump and the general corrosion-resistant pump. It features an attractive appearance, lightweight structure, high efficiency and energy saving, durability, resistance to light corrosion and low noise

Characteristics such as sound.



## Application

The FS type stainless steel horizontal single-stage centrifugal pump is a multi-functional product with a wide range of applications, capable of transporting various liquids including water or industrial liquids. It is suitable for different media and varies in temperature, flow rate and pressure range. Its typical applications mainly include the following aspects:

- Water supply: Water plant filtration, transportation, zoned water delivery and main pipe pressure increase;
- Industrial pressurization: Process water systems, cleaning systems;
- Industrial liquid transportation: boiler feed water, condensation systems, cooling and air conditioning systems, machine tool accessories, weak acid and alkali transportation;
- Water treatment: distillation systems or separators, swimming pools, etc.
- Farmland irrigation, medical and health care, etc.

## Installation conditions

The FS type stainless steel horizontal single-stage centrifugal pump is directly connected to the pump shaft and consists of a pump, a pump shaft and a standard motor.

The pump should be installed in a well-ventilated and anti-freezing place.

The installation of the pump should ensure that it is not affected by the tension of the system pipeline during use.

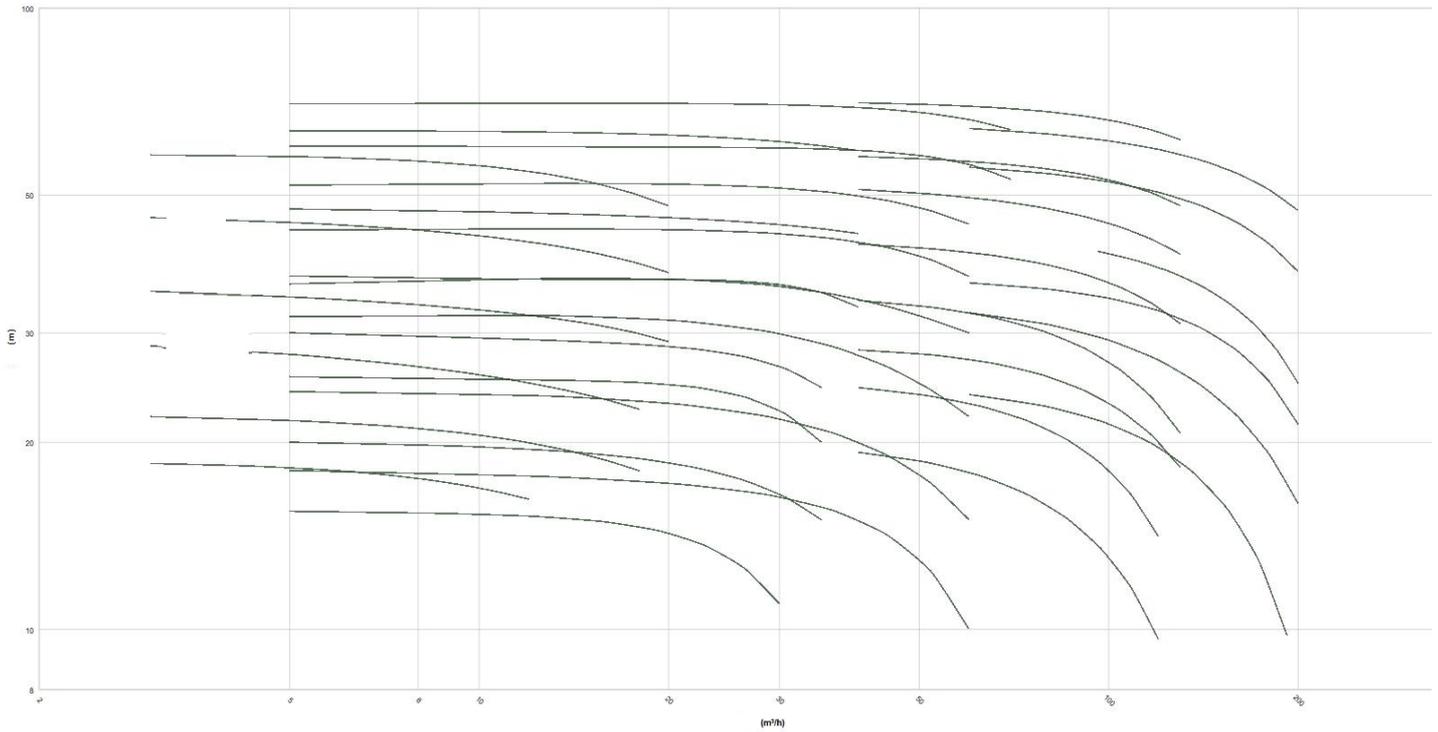
If the pump is installed outdoors, a suitable outer cover must be provided to prevent water or condensation from entering the electrical components.

To facilitate inspection and maintenance, sufficient space must be left around the unit.

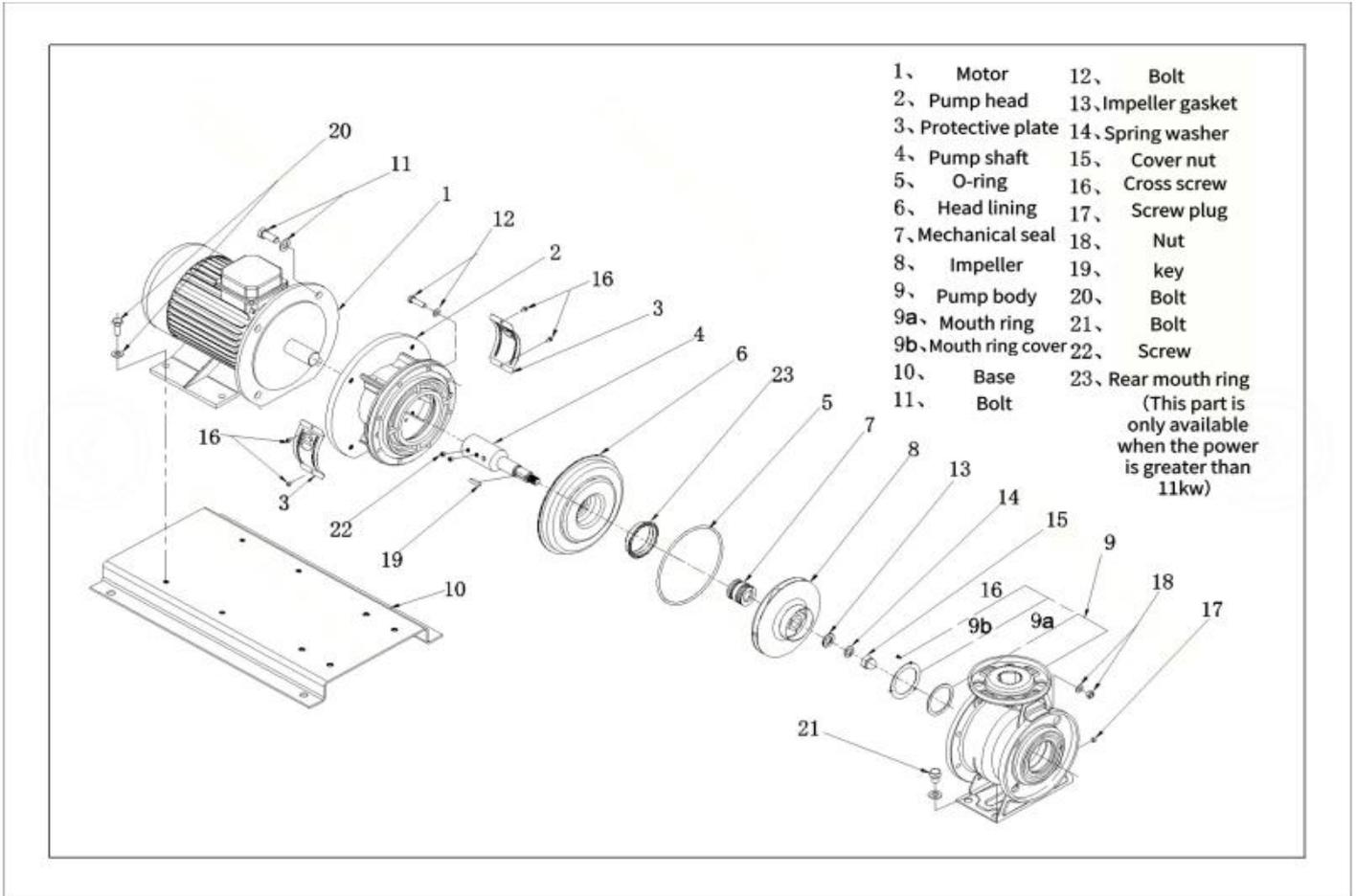
The electrical wiring device should ensure that the pump is not damaged by phase loss, unstable voltage, leakage and overload.

The pump should be installed horizontally on the base. The horizontal direction is the suction port of the pump and the vertical direction is the discharge port of the pump.

# TCurve



4



## Performance parameters

	Model	Q [m <sup>3</sup> /h]	H [m]	n [r/min]	Voltage [V]	
					1×220V	3×380V
					P <sub>2</sub> [kW]	P <sub>2</sub> [kW]
1	50-32-160/1.1	6.3	18	2900	1.1	1.1
2	50-32-160/1.5	12.5	20		1.5	1.5
3	50-32-160/2.2	12.5	25		2.2	2.2
4	50-32-200/3.0	12.5	32			3
5	50-32-200/4.0	12.5	42			4
6	50-32-200/5.5	12.5	54			5.5
7	65-40-125/1.5	25	13		1.5	1.5
8	65-40-125/2.2	25	18		2.2	2.2
9	65-40-125/3.0	25	24			3
10	65-40-160/4.0	25	28			4
11	65-40-200/5.5	25	36			5.5
12	65-40-200/7.5	25	46			7.5
13	65-40-200/11.0	25	62		2950	
14	65-50-125/3.0	50	13	2900		3
15	65-50-125/4.0	50	18			4
16	65-50-160/5.5	50	25			5.5
17	65-50-200/7.5	50	32			7.5
18	65-50-200/9.2	50	40			9.2
19	65-50-200/11.0	50	48			11
20	65-50-200/15.0	50	58	2950		15
21	65-50-200/18.5	50	68			18.5
22	80-65-125/5.5	100	13	2900		5.5
23	80-65-125/7.5	100	18			7.5
24	80-65-125/9.2	100	23			9.2
25	80-65-160/11.0	100	27	2950		11
26	80-65-160/15.0	100	36			15
27	80-65-200/18.5	100	45			18.5
28	80-65-200/22.0	100	53			22
29	80-65-200/30.0	100	66			30
30	100-80-160/11.0	160	15			11
31	100-80-160/15.0	160	22			15
32	100-80-160/18.5	160	28			18.5
33	100-80-200/22.0	160	33			22
34	100-80-200/30.0	160	45			30
35	100-80-200/37.0	160	54			37

### Minimum inlet pressure -NPSH

If the pressure in the pump is lower than the vapor pressure of the conveyed liquid, cavitation may occur. To avoid cavitation, ensure that there is a minimum pressure on the pump inlet side.

The maximum suction lift  $H[m]$  can be calculated by the following formula:

$$H = P_b \times 10.2 - NPSH - H_f - H_v - H_s$$

$P_b$ - Atmospheric pressure (Bar)

In a closed pipeline, it can be regarded as the system pressure (bar) of the closed system.

NPSH- Net Positive Suction Head (m)

It can be read at the position corresponding to the maximum flow on the NPSH curve in the performance curve.

$H_f$ - Pipeline loss at the inlet (meters)

It is the value corresponding to the maximum flow rate that the pipeline may generate.

$H_v$ - Vaporization pressure of liquid (meters)

The magnitude of its value depends on the temperature of the liquid and the vaporization pressure value of the liquid.

$H_s$ - Safety Margin (meters)

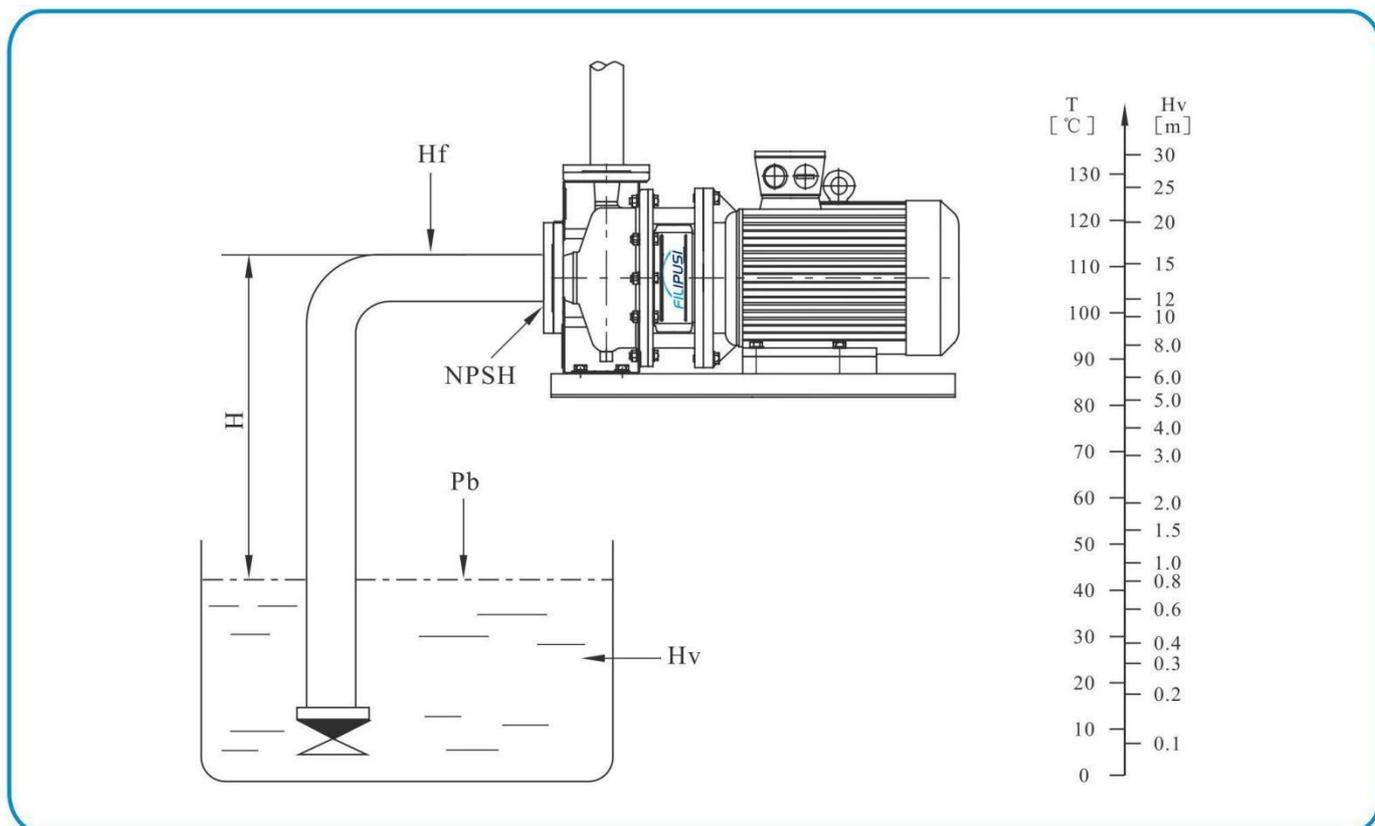
The minimum pressure head is 0.5 meters

Through calculation, if "H" is positive, it indicates that the pump can operate at the maximum suction lift "H". If "H" is negative, it indicates

The pump can operate normally only when there is a pressure head with a minimum pressure of "H" meters at the inlet.

Note: Generally, the above calculations are not carried out. The "H" should be calculated only when the pump is used in the following circumstances:

1. The liquid temperature is relatively high
2. The flow rate of the liquid exceeded the rated value
3. Large suction lift or long inlet pipeline
4. The system pressure is too low
5. Poor import conditions



### Curve condition

The following explanations apply to the curves shown later:

1. The curve tolerance complies with ISO9906, Appendix A;
2. All curves are based on the measured values of the motor at a constant speed of 2900rpm or 2950rpm with a voltage of 3×380V.
3. The test medium is clear water with a temperature of 20°C and free of any solid impurities.
4. The pump should not operate at a flow rate lower than the minimum specified in the curve or higher than the maximum specified in the curve.
5. If the viscosity or density of the pumped liquid is different from that of water, the motor power must be adjusted.

### Operating conditions

- Clean, thin, non-flammable and non-explosive liquids without solid particles and fibers;
- Liquids with temperatures ranging from -20°C to +100°C;
- Maximum ambient temperature: +40°C
  - The highest altitude is 1,000 meters;
- The maximum system pressure is 10bar.

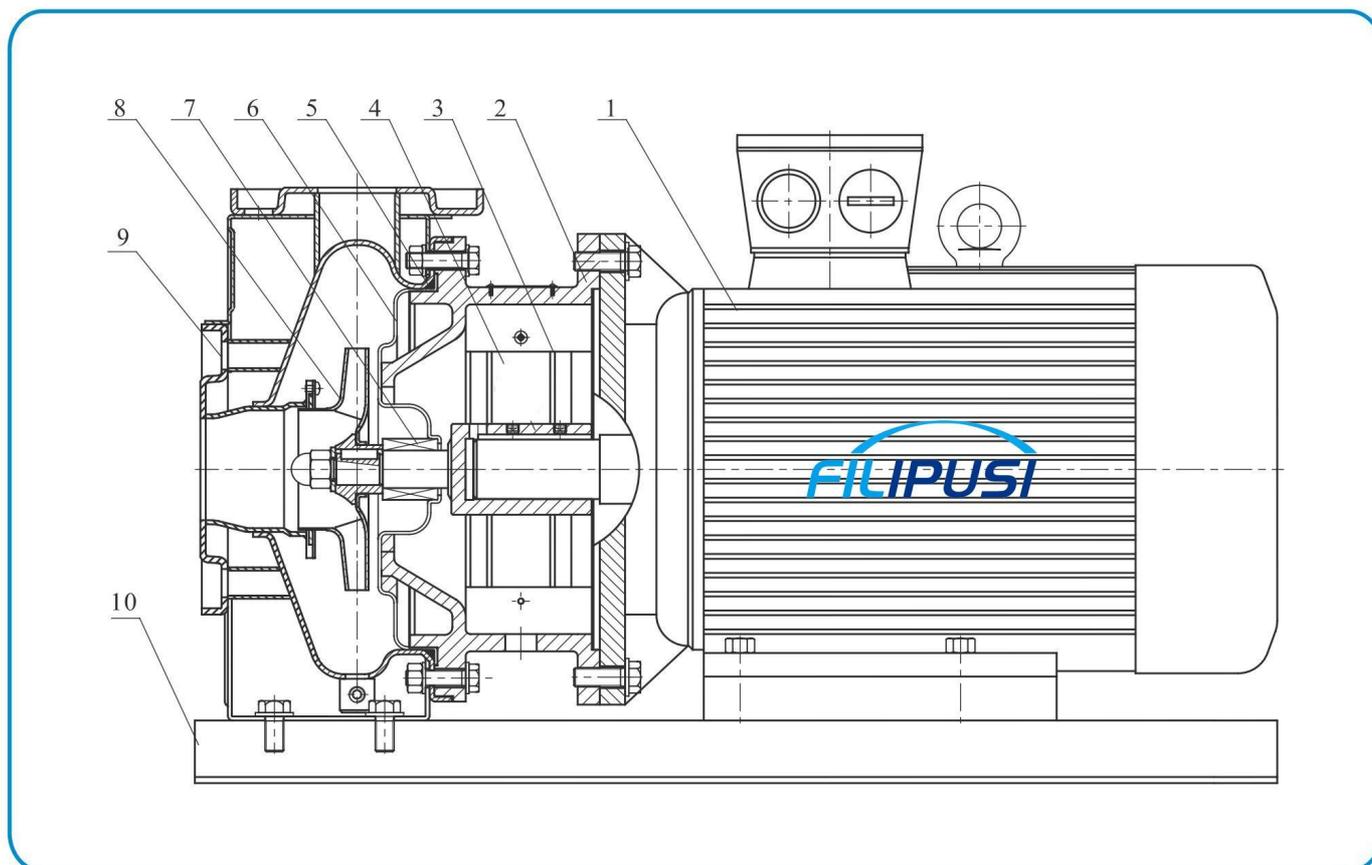
### Motor

The motor is a fully enclosed, air-cooled two-pole standard motor.

- Protection grade :IP55
- Insulation class :F
- Standard voltage :50Hz 1x220V  
3×380V



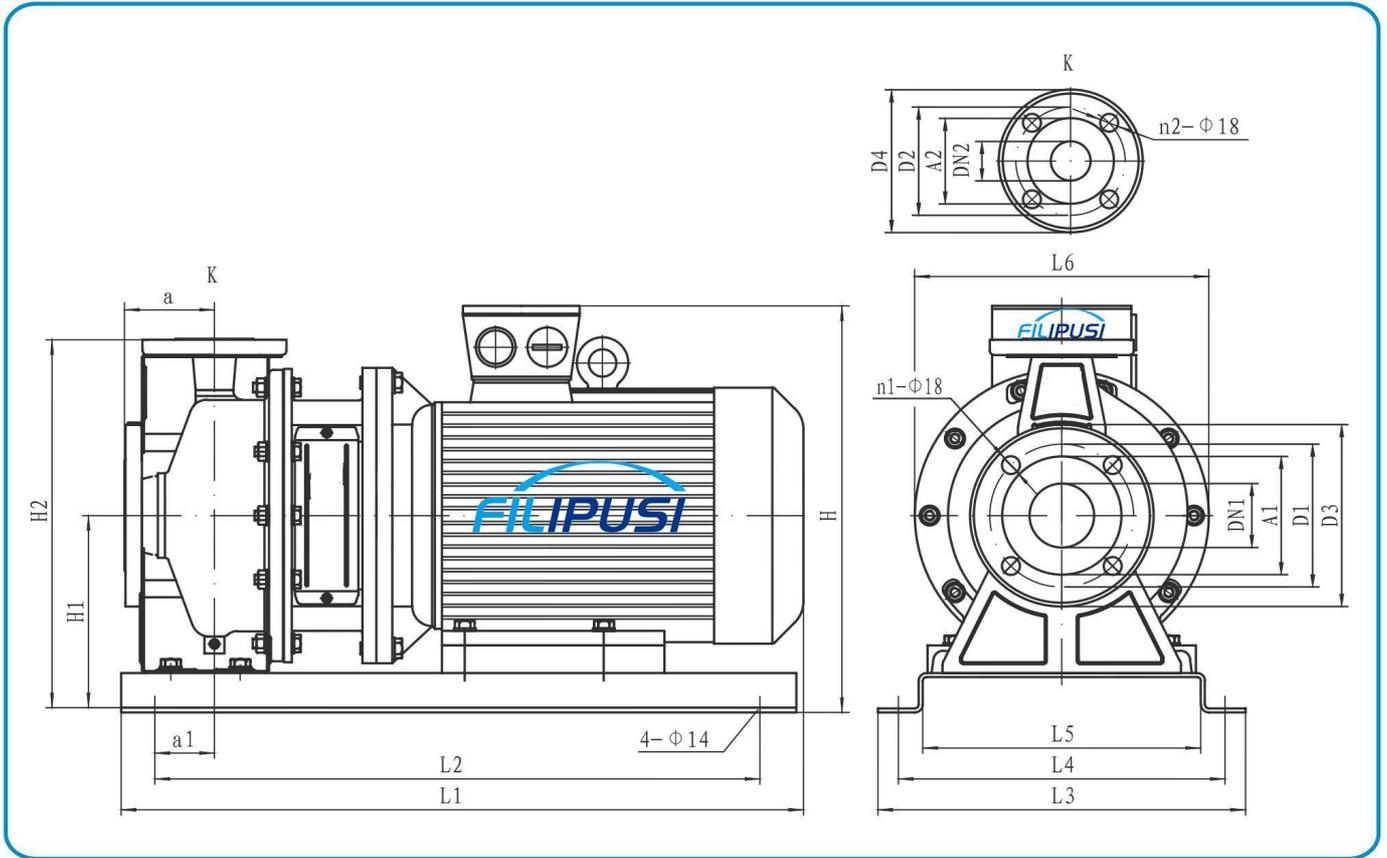
## Cross-sectional view



## 零件材料

	Part	Materials	Code/AISI/ASTM
1	Motor		
2	Pump head	Cast iron HT200	ASTM25B
3	Protective plate	AISI304 0Cr18Ni9	AISI304
4	Pump shaft	AISI304 2Cr13/0Cr18Ni9	AISI420/ AISI304
5	Rubber parts	Nitrile rubber NBR	
6	Pump head lining	AISI304 0Cr18Ni9	AISI304
7	Mechanical seal	Graphite/Silicon	
8	Impeller	AISI304 Cr18Ni9	AISI304
9	Pump body	AISI304 Cr18Ni9	AISI304
10	Base	Steel Q235	ASTMA570

## Installation diagram



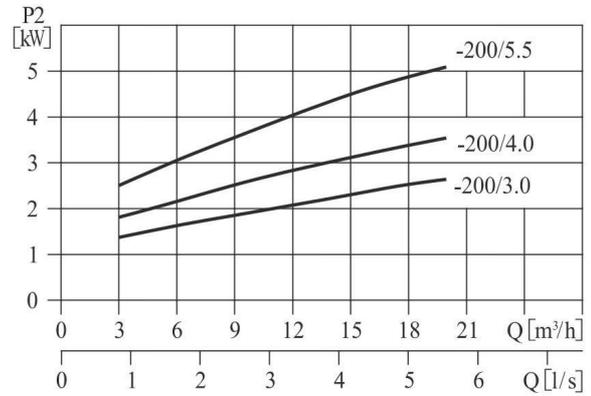
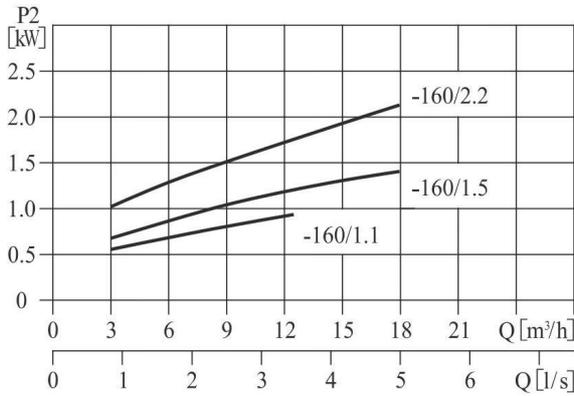
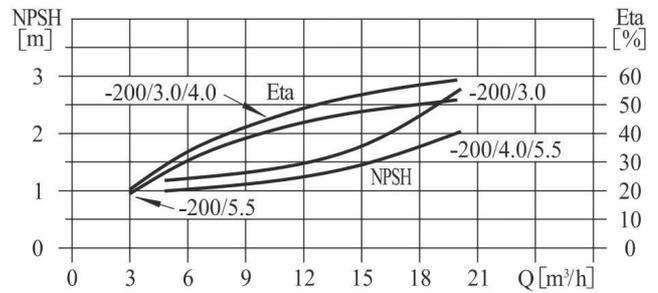
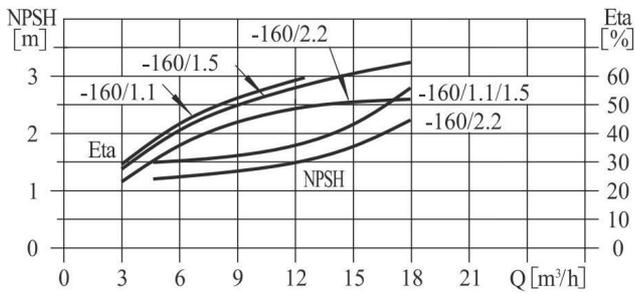
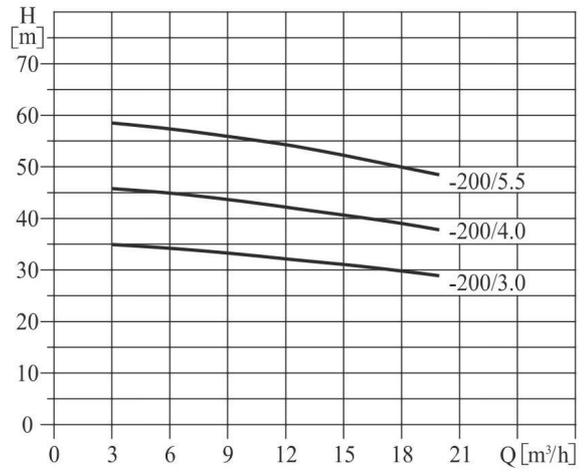
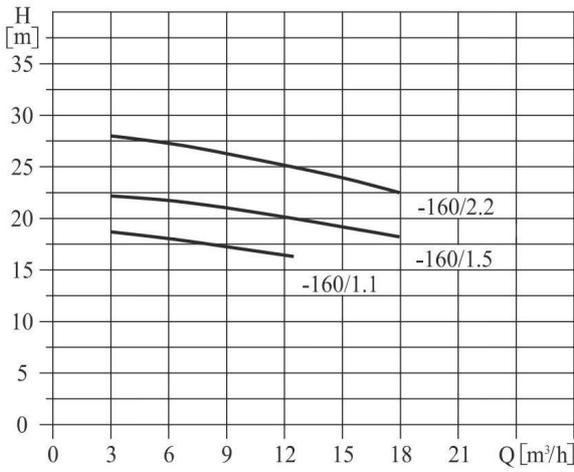
## Size and weight

Model	[mm]																					[kg]
	DN1	DN2	A1	A2	D1	D2	D3	D4	n1	n2	a	a1	H	H1	H2	L1	L2	L3	L4	L5	L6	
50-32-160/1.1	50	32	98	75	125	100	160	139	4	4	80	32	290	152	296	470	370	280	240	192	210	31
50-32-160/1.5	50	32	98	75	125	100	160	139	4	4	80	46	307	152	296	500	430	280	240	192	210	37
50-32-160/2.2	50	32	98	75	125	100	160	139	4	4	80	46	307	152	296	500	430	280	240	192	210	39
50-32-200/3.0	50	32	98	75	125	100	160	139	4	4	84	42	370	200	386	550	460	330	290	242	300	53
50-32-200/4.0	50	32	98	75	125	100	160	139	4	4	84	47	393	200	386	560	480	330	290	242	300	58
50-32-200/5.5	50	32	98	75	125	100	160	139	4	4	84	50	413	200	386	660	580	370	330	280	300	77
65-40-125/1.5	65	40	118	84	145	110	185	145	4	4	80	45	307	152	294	502	430	280	240	192	210	33
65-40-125/2.2	65	40	118	84	145	110	185	145	4	4	80	45	307	152	294	502	430	280	240	192	210	35
65-40-125/3.0	65	40	118	84	145	110	185	145	4	4	80	45	322	152	294	532	460	300	260	212	250	47
65-40-160/4.0	65	40	118	84	145	110	185	145	4	4	80	45	345	152	294	557	480	330	290	242	250	52
65-40-200/5.5	65	40	118	84	145	110	185	145	4	4	100	50	413	200	380	680	580	370	330	280	300	78
65-40-200/7.5	65	40	118	84	145	110	185	145	4	4	100	50	413	200	380	680	580	370	330	280	300	82
55-40-200/11.0	65	40	118	84	145	110	185	145	4	4	100	50	456	200	380	790	690	420	380	330	350	161

## Size and weight

Model	[mm]																				[kg]	
	DN1	DN2	A1	A2	D1	D2	D3	D4	n1	n2	a	a1	H	H1	H2	L1	L2	L3	L4	L5		L6
65-50-125/3.0	65	50	118	98	145	125	185	160	4	4	86	45	342	172	338	548	468	330	290	242	250	49
65-50-125/4.0	65	50	118	98	145	125	185	160	4	4	86	45	365	172	338	570	490	330	290	242	250	54
65-50-160/5.5	65	50	118	98	145	125	185	160	4	4	100	50	413	200	380	680	580	370	330	280	300	78
65-50-200/7.5	65	50	118	98	145	125	185	160	4	4	100	50	413	200	380	680	580	370	330	280	300	82
65-50-200/9.2	65	50	118	98	145	125	185	160	4	4	100	50	413	200	380	680	580	370	330	280	300	85
65-50-200/11.0	65	50	118	98	145	125	185	160	4	4	100	50	456	200	380	790	690	420	380	330	350	161
65-50-200/15.0	65	50	118	98	145	125	185	160	4	4	100	50	456	200	380	790	690	420	380	330	350	171
65-50-200/18.5	65	50	118	98	145	125	185	160	4	4	100	50	456	200	380	830	730	420	380	330	350	188
80-65-125/5.5	80	65	130	118	160	145	200	185	8	4	100	50	413	200	380	690	590	370	330	280	300	79
80-65-125/7.5	80	65	130	118	160	145	200	185	8	4	100	50	413	200	380	690	590	370	330	280	300	83
80-65-125/9.2	80	65	130	118	160	145	200	185	8	4	100	50	413	200	380	690	590	370	330	280	300	87
80-65-160/11.0	80	65	130	118	160	145	200	185	8	4	100	50	456	200	400	790	690	420	380	330	350	163
80-65-160/15.0	80	65	130	118	160	145	200	185	8	4	100	50	456	200	400	790	690	420	380	330	350	173
80-65-200/18.5	80	65	130	118	160	145	200	185	8	4	100	50	476	220	445	830	730	420	380	330	350	190
80-65-200/22.0	80	65	130	118	160	145	200	185	8	4	100	50	500	220	445	880	780	455	415	365	350	220
80-65-200/30.0	80	65	130	118	160	145	200	185	8	4	100	50	550	240	465	950	850	495	455	405	400	292
100-80-160/11.0	100	80	150	130	180	160	220	200	8	8	125	75	476	220	445	830	730	420	380	330	350	163
100-80-160/15.0	100	80	150	130	180	160	220	200	8	8	125	75	476	220	445	830	730	420	380	330	350	173
100-80-160/18.5	100	80	150	130	180	160	220	200	8	8	125	75	476	220	445	870	770	420	380	330	350	185
100-80-200/22.0	100	80	150	130	180	160	220	200	8	8	125	75	500	220	470	915	810	455	415	365	350	223
100-80-200/30.0	100	80	150	130	180	160	220	200	8	8	125	75	550	240	490	985	880	495	455	405	400	295
100-80-200/37.0	100	80	150	130	180	160	220	200	8	8	125	75	550	240	490	985	880	495	455	405	400	315

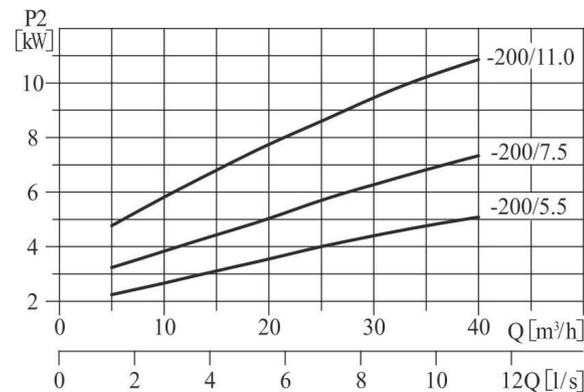
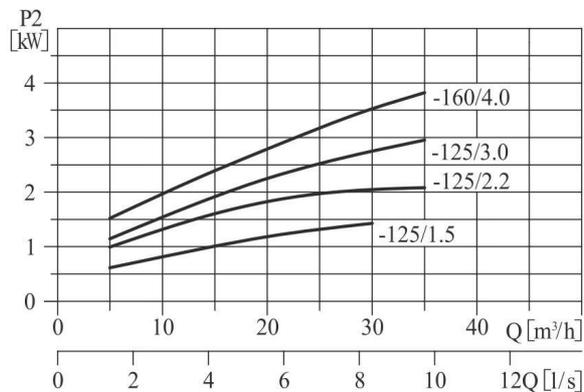
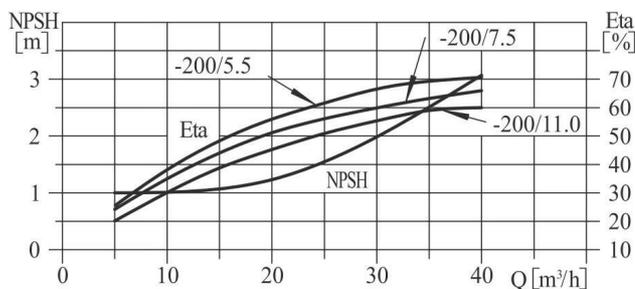
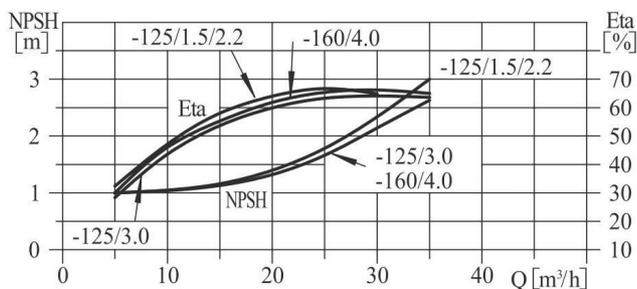
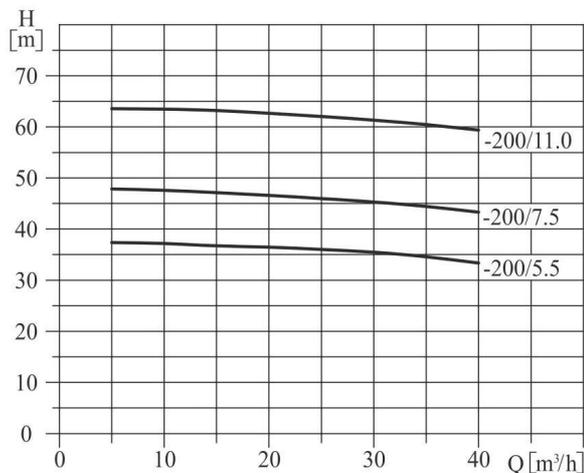
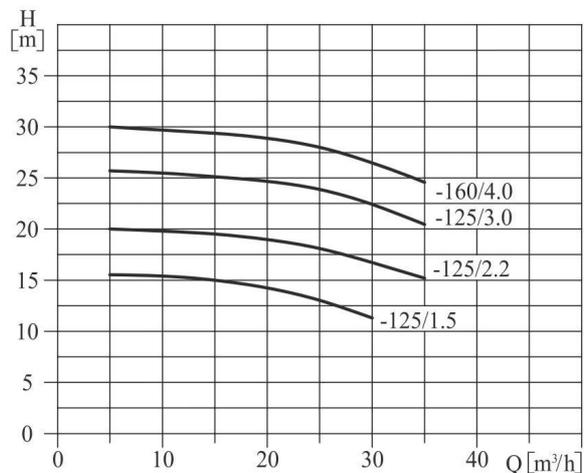
50-32-\*\*\*:



性能表

Model	Power (kW)	Q(m³/h)	3	6.3	9	12.5	15	18	20
50-32-160/1.1	1.1	H (m)	18.7	18	17.2	16.4			
50-32-160/1.5	1.5		22.5	22	21	20	19	18	
50-32-160/2.2	2.2		28	27	26.3	25	24	22.5	
50-32-200/3.0	3		34.9	34.1	33.3	32	31	29.8	28.9
50-32-200/4.0	4		45.7	44.8	43.7	42	40.7	39	37.7
50-32-200/5.5	5.5		58.5	57.2	56	54	52.5	50	48.5

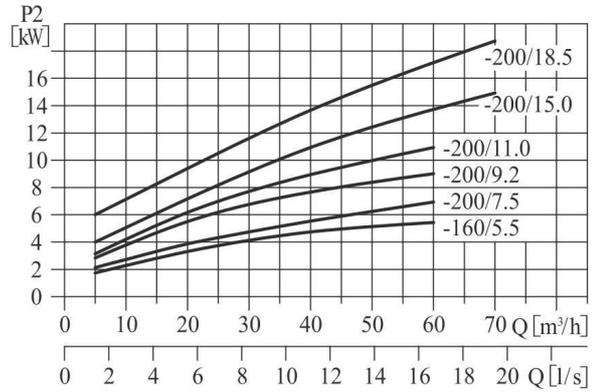
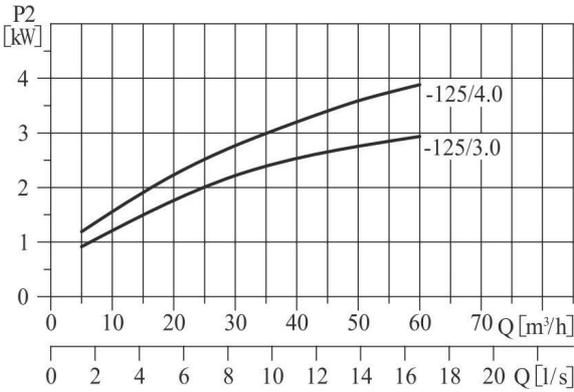
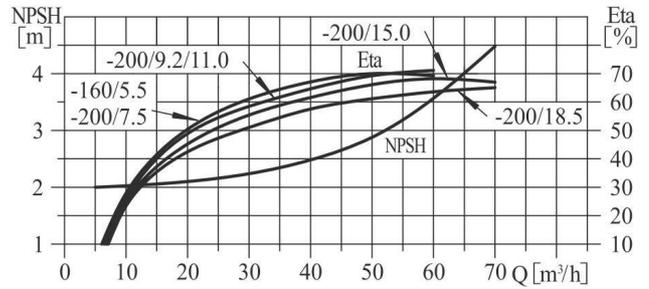
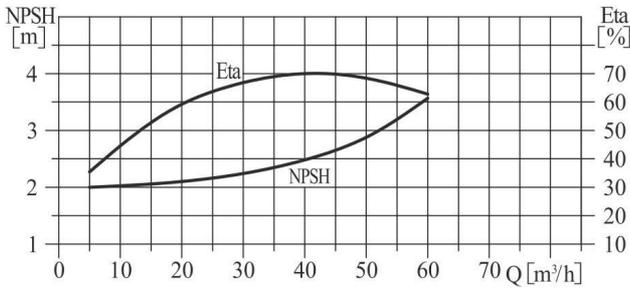
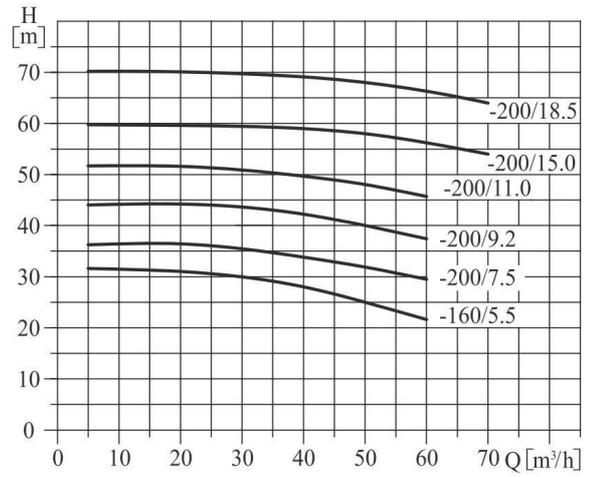
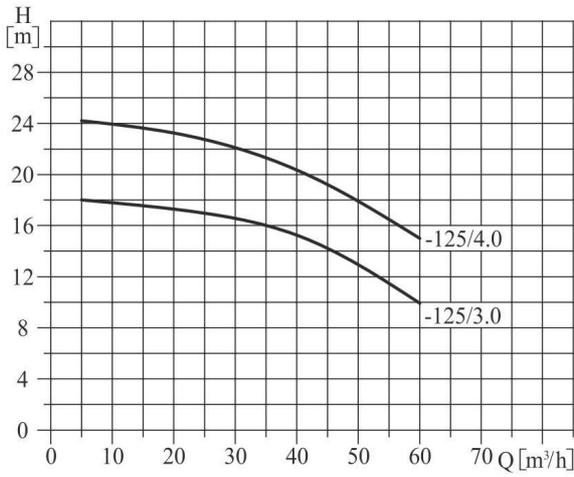
### 65-40-\*\*\*:



### 性能表

Model	Power (kW)	Q(m³/h)	5	10	15	20	25	30	35	40
65-40-125/1.5	1.5	H (m)	15.5	15.4	15	14.4	13	11.3		
65-40-125/2.2	2.2		20	19.7	19.5	19	18	16.7	15.2	
65-40-125/3.0	3		25.7	25.3	25.1	24.8	24	22.3	20.3	
65-40-160/4.0	4		30	29.7	29.3	28.9	28	26.5	24.5	
65-40-200/5.5	5.5		37.4	37.2	36.7	36.4	36	35.5	34.6	33.3
65-40-200/7.5	7.5		48	47.5	47	46.6	46	45.2	44.5	43.3
65-40-200/11.0	11		64	63.5	63	62.5	62	61.5	60.5	59

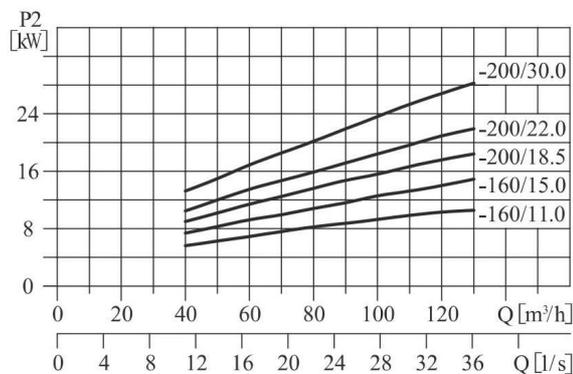
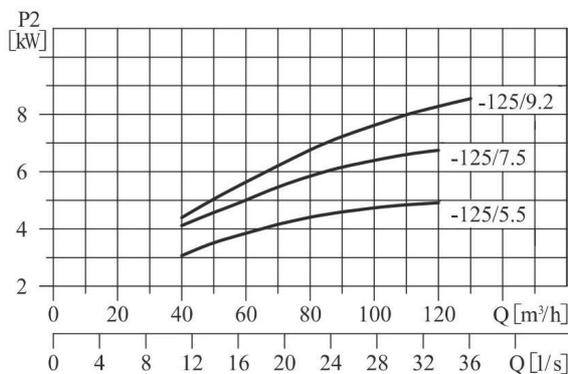
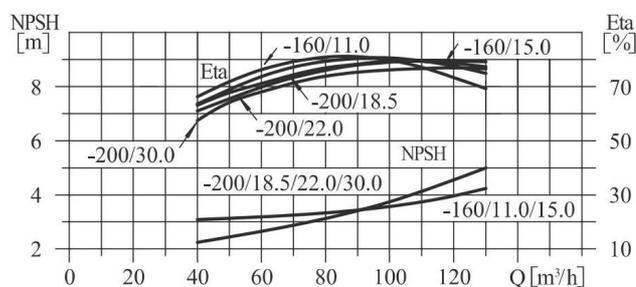
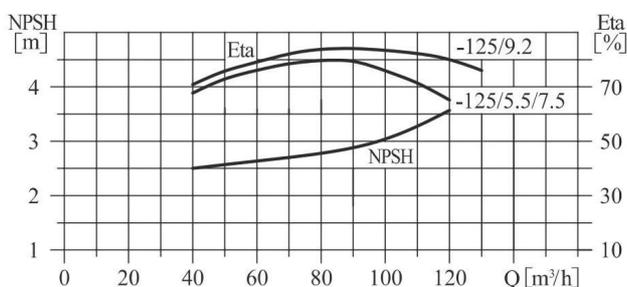
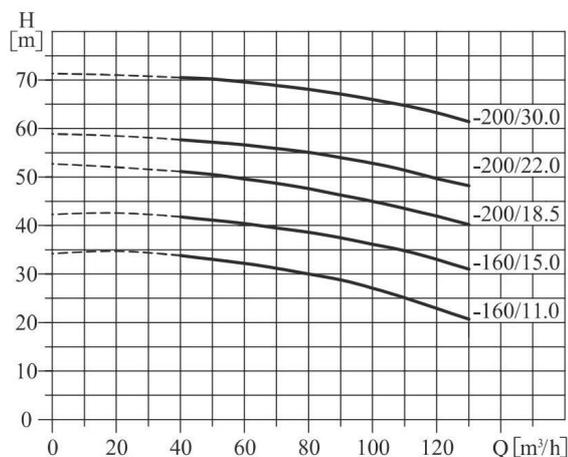
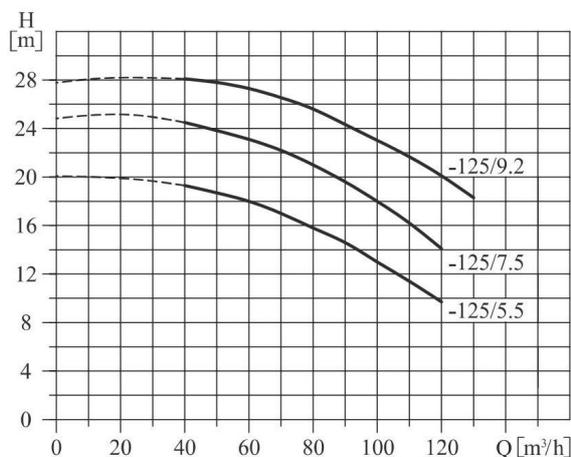
65-50-\*\*\*:



性能表

Model	Power (kW)	Q(m³/h)	5	10	20	30	40	50	60	70
65-50-125/3.0	3	H (m)	18	17.8	17.2	16.4	15.1	13	10	
65-50-125/4.0	4		24.2	24.2	23.6	22.6	20.7	18	14.8	
65-50-160/5.5	5.5		31.6	31.5	31	30	28	25	21.5	
65-50-200/7.5	7.5		36.3	36.6	36.4	35.6	34.1	32	29.6	
65-50-200/9.2	9.2		43.5	43.5	43.5	43	42	40	37.5	
65-50-200/11.0	11		51.5	51.5	51	50	49.3	48	45.6	
65-50-200/15.0	15		59.7	59.7	59.6	59.5	59	58	56.2	53
65-50-200/18.5	18.5		70.2	70.2	70.1	70	69.1	68	66.4	64

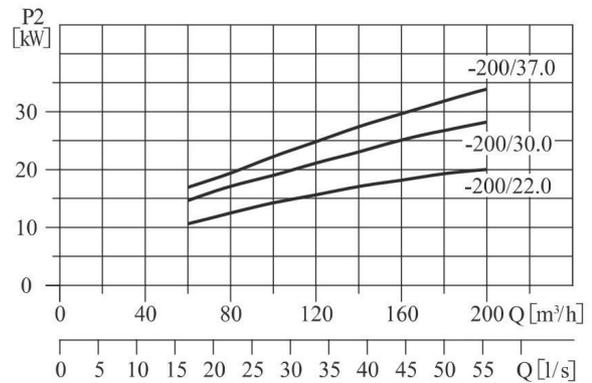
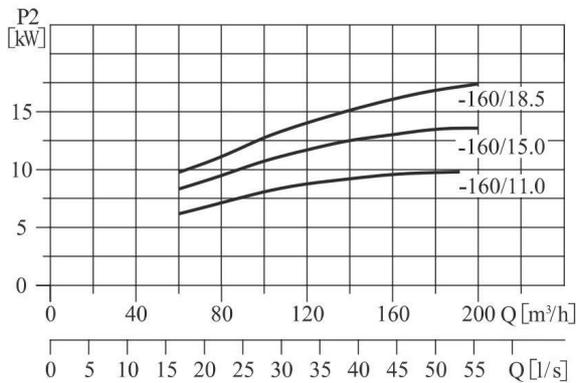
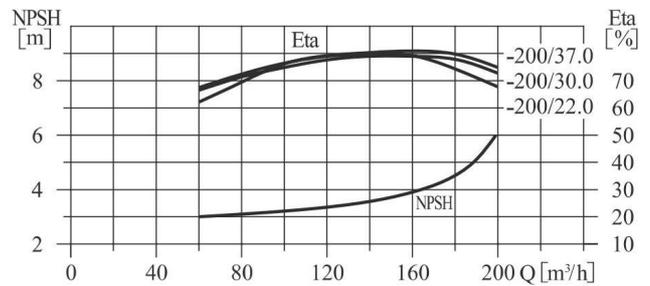
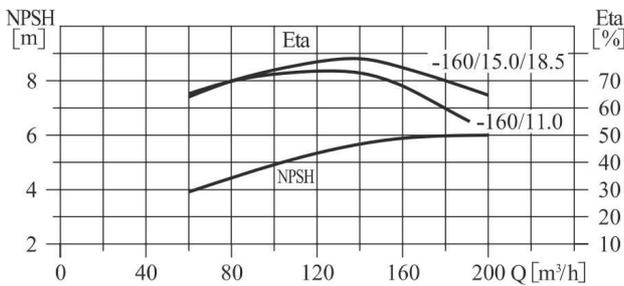
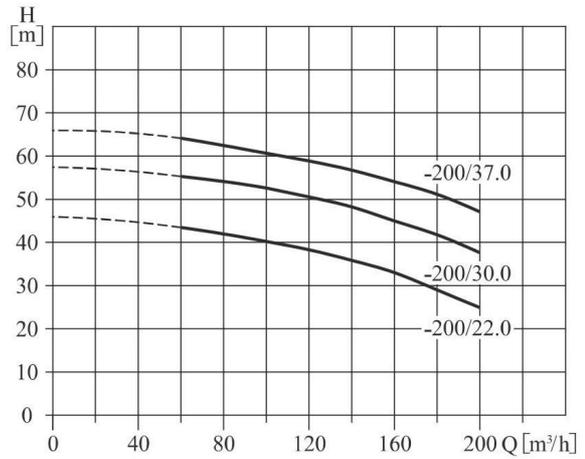
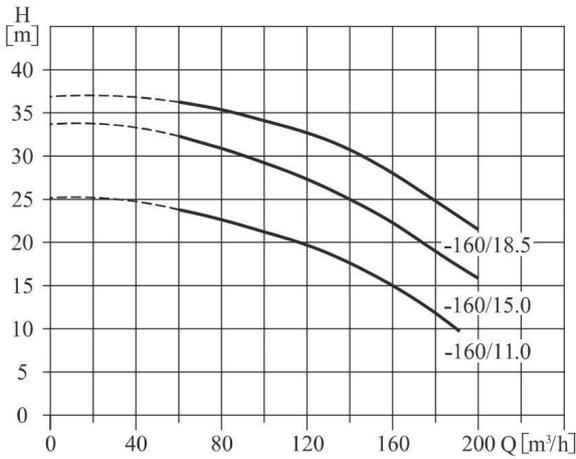
## 80-65-\*\*\*:



## 性能表

Model	Power (kW)	Q(m³/h)	40	50	60	70	80	90	100	110	120	130
80-65-125/5.5	5.5	H (m)	19.3	18.7	18	17	15.8	14.8	13	11.4	9.7	
80-65-125/7.5	7.5		24.5	23.8	23.1	22.2	21	19.6	18	16.2	14.1	
80-65-125/9.2	9.2		28.1	27.8	27.3	26.6	25.7	24.3	23	21.8	20.1	18.3
80-65-160/11.0	11.0		33.9	33	32.2	31.3	29.9	28.8	27	25.1	22.9	20.7
80-65-160/15.0	15.0		41.8	41.1	40.4	39.5	38.6	37.6	36	34.8	33	31
80-65-200/18.5	18.5		51	50.5	49.6	48.7	47.6	46.3	45	43.5	42.2	40.2
80-65-200/22.0	22.0		57.7	57.2	56.8	55.9	55.1	54	53	51.6	49.7	48.2
80-65-200/30.0	30.0		70.2	70.2	69.6	68.9	68.2	67.1	66	64.6	63.3	61.4

100-80-\*\*\*:



性能表

Model	Power (kW)	Q(m³/h)	60	80	100	120	140	160	180	192	200
100-80-160/11.0	11	H (m)	23.8	22.7	21.1	19.7	17.6	15	11.8	9.7	
100-80-160/15.0	15		32.3	30.8	29.1	27.2	25.1	22	18.8		16.1
00-80-160/18.5	18.5		36.2	35.2	33.8	32.7	31	28	24.8		21.5
00-80-200/22.0	22		43.5	42	39.7	38.3	35.9	33	29		24.9
00-80-200/30.0	30		55.4	54.1	52.6	50.5	48.2	45	41.9		37.6
00-80-200/37.0	37		64.1	62.5	61	59	57.4	54	51.2		47.1

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