

®

ZS



NOCCHI

Pentair Water

50Hz/60Hz



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Technical Data

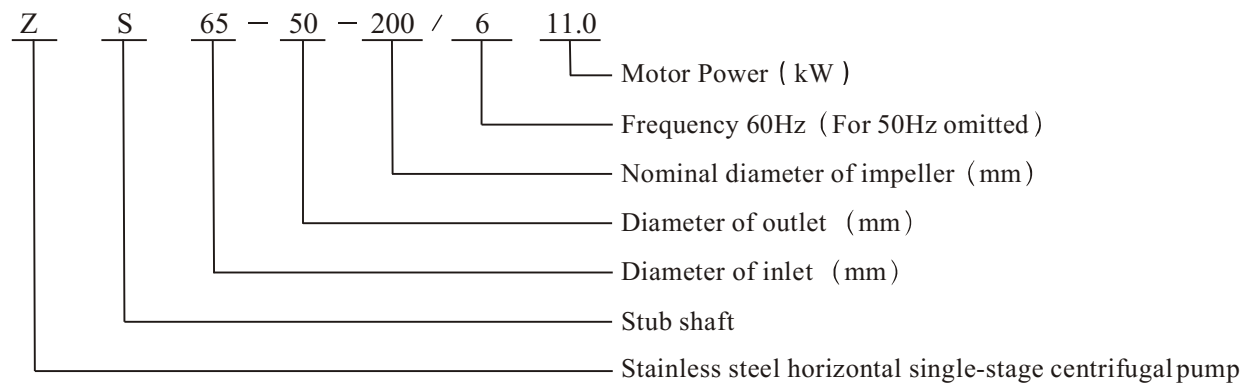
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● Introduction

ZS Stainless steel horizontal single-stage centrifugal pump is made by advanced techniques such as pressing replace traditional IS pump and common corrosion proof pump. It features beautiful appearance, light and handy structure, high efficiency and energy saving, durable, corrosion proof, low noise, etc.

● Definition of Model

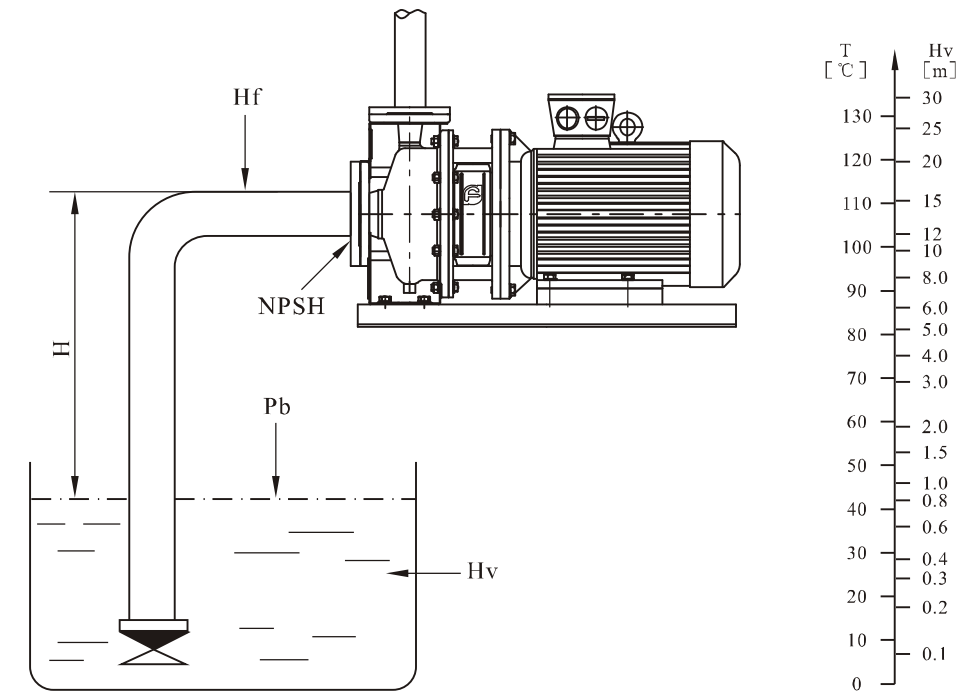
ZS 65-50-200/6 11.0



● Application

ZS Stainless steel horizontal single-stage centrifugal pump is a sort of multifunction product with wide application. It may transmit various mediums including water or industrial liquid and is suitable for different temperature, flow rate and range of pressure. Its typical application mainly includes the following aspects:

- Water supply: filtration in water works, transportation and subarea water carriage, pressurization of main duct;
- Industrial pressurization: flow wetting system, cleaning system;
- Transportation of industrial liquid: water supply of boiler, condensed system, cooling and air conditioning system, machine tool support, light acid and alkali transportation;
- Water treatment: distilled water system or separator, swimming pool, etc.;
- Irrigation of agricultural land, petrochemical industry, medicine and sanitation, etc.



● Minimum inlet pressure NPSH

In case that the pressure in pump is lower than the steam pressure used to convey liquid, the cavitations will occur. To avoid cavitations, a minimum pressure at the inlet side of the pump shall be guaranteed. The maximum suction stroke can be calculated with following formula:

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

P_b – Atmosphere pressure (bar)

In a closed system, P_b means system pressure (bar)

$NPSH$ – Net positive suction head (m)

It can be read from the point of Max. flow rate shown on NPSH curve.

H_f – Pipeline loss at the inlet (m)

It is in accordance with pipeline possible Max. Flow.

H_v – Steam pressure (m)

It depends on liquid temperature and steam pressure value.

H_s – Safety margin (m)

Minimum 0.5m delivery head.

If the calculated result H is negative, the pump may run under the Max. Suction head H . In case the calculated result H is negative, a delivery head of Min. Inlet pressure is necessary.

Note: Normally, the above calculation will not be done. H is calculated in the following conditions:

- 1、 The liquid temperature is comparatively higher;
- 2、 Liquid flow exceeds rated value;
- 3、 Suction head is comparatively large or inlet pipeline long;
- 4、 System pressure is too low;
- 5、 Bad inlet condition.

● Installation requirements

ZS Stainless steel horizontal single-stage centrifugal pump is the direct connection by pump shaft, composed of pump, pump shaft and standard motor:

- The pump shall be installed on the ventilating and anti-freezing place;
- The installation of the pump shall ensure that the pump will not be influenced by the tension of the pipeline;
- If the pump is installed outdoor, suitable outer cover must be configured to prevent electric elements from water inflow or coagulating dew;
- To facilitate inspection and maintenance, enough space must be left around the machine group;
- Electric wiring device shall guarantee that the pump will not be damaged by lack of phase, unstable voltage, current leakage and overload;
- The pump shall be installed on the pedestal horizontally. Horizontal direction is the inlet for the pump, and vertical direction is the outlet for the pump.

● Curves

Following conditions are suitable for the performance curves shown bellow:

- 1、 Curve tolerance is in conformity with ISO9906 Annex A;
- 2、 All curves are based on the measured value of motor 3×380V, 50Hz: under the constant speed of 2900rpm or 2950rpm; 60Hz: under the constant speed of 3450rpm or 3500rpm;
- 3、 The test medium is clear 20°C water without any solid impurity;
- 4、 Pumps should not work if the flow is beyond the minimum or the maximum flow in the curves;
- 5、 The motor power shall be adjusted if the viscosity or density of medium is different from water.

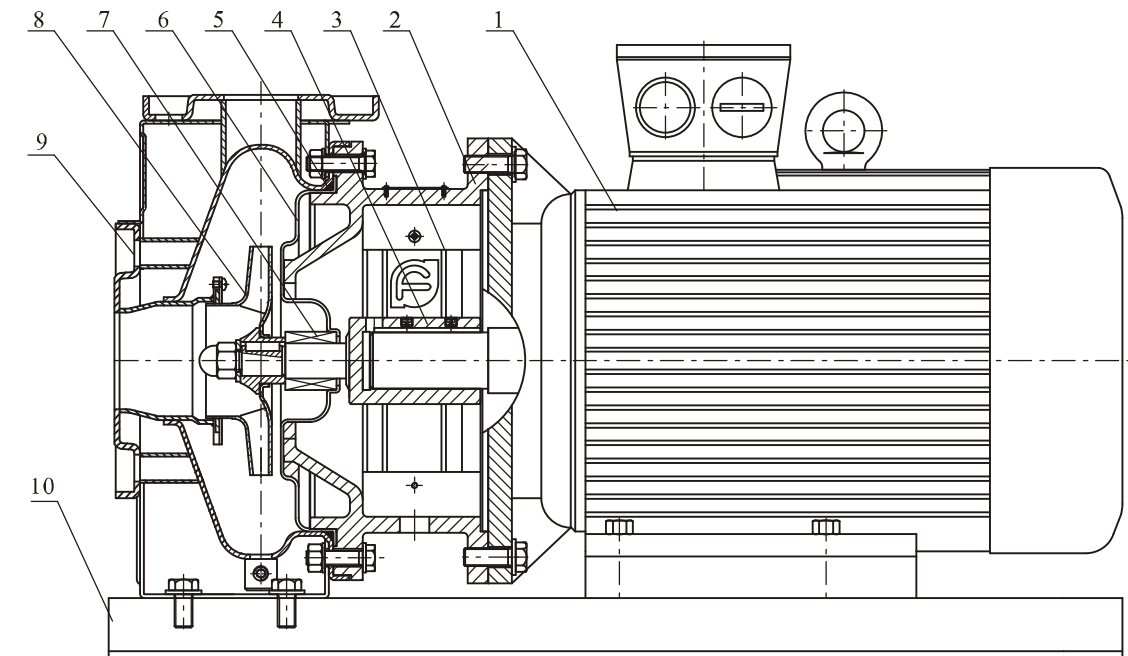
● Operating condition

- Clean, thin, non-flammable and explosive, not containing the liquid with solid particle and fibre;
- Liquid temperature: -20°C ~ +100°C ;
- Ambient temperature: up to +40°C ;
- Altitude: up to 1000m;
- Max. pressure of the system is 10 bar.

● Motor

- TEFC motor, 2-pole;
- Protection class: IP55;
- Insulation class : F;
- Standard voltage: 50Hz 1 × 220V
3 × 380V
- Standard voltage: 60Hz 1 × 220V
3 × 220V
3 × 380V
3 × 460V

● Section drawing

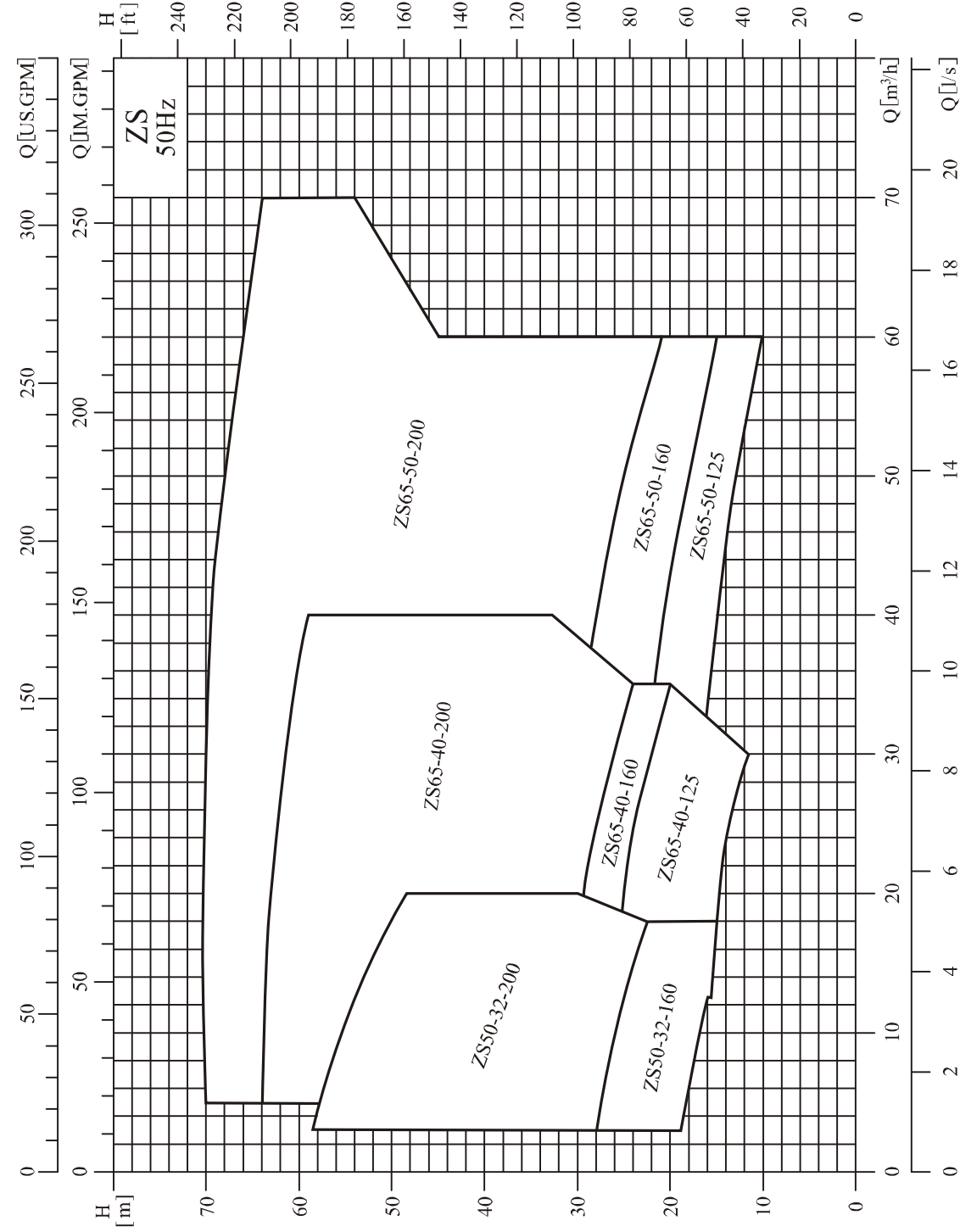


● Material

NO.	Parts	Material	AISI/ASTM
1	Motor		
2	Pump head	HT 200	ASTM25B
3	Guard plate	0Cr18Ni9	AISI304
4	Shaft	2Cr13/0Cr18Ni9	AISI420/ AISI304
5	Rubber parts	NBR	
6	Lining of pump head	0Cr18Ni9	AISI304
7	Mechanical seal	Carbon/Silicon Carbide	
8	Impeller	0Cr18Ni9	AISI304
9	Pump body	0Cr18Ni9	AISI304
10	Base plate	Q235	ASTMA570

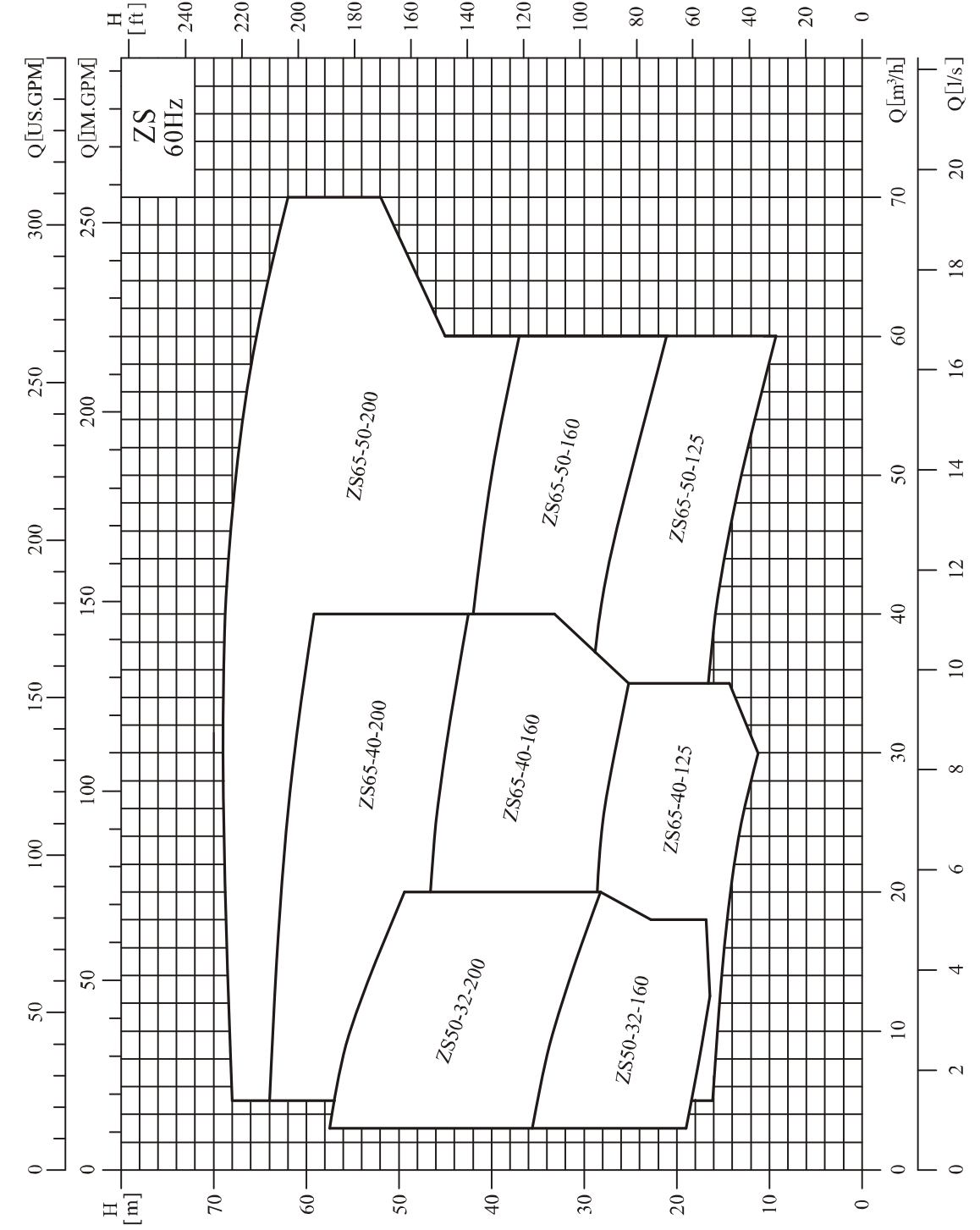
● Scope of performance

50Hz



● Scope of performance

60Hz



● Product range

50Hz

NO.	Model	Q (m ³ /h)	H (m)	n (r/min)	Standard voltage (V)	
					1×220V	3×380V
					P ₂ (kW)	P ₂ (kW)
1	ZS50-32-160/1.1	6.3	18	2900	1.1	1.1
2	ZS50-32-160/1.5	12.5	20		1.5	1.5
3	ZS50-32-160/2.2	12.5	25		2.2	2.2
4	ZS50-32-200/3.0	12.5	32			3
5	ZS50-32-200/4.0	12.5	42			4
6	ZS50-32-200/5.5	12.5	54			5.5
7	ZS65-40-125/1.5	25	13		1.5	1.5
8	ZS65-40-125/2.2	25	18		2.2	2.2
9	ZS65-40-125/3.0	25	24			3
10	ZS65-40-160/4.0	25	28			4
11	ZS65-40-200/5.5	25	36			5.5
12	ZS65-40-200/7.5	25	46			7.5
13	ZS65-40-200/11.0	25	62	2950		11
14	ZS65-50-125/3.0	50	13	2900		3
15	ZS65-50-125/4.0	50	18			4
16	ZS65-50-160/5.5	50	25			5.5
17	ZS65-50-200/7.5	50	32			7.5
18	ZS65-50-200/9.2	50	40			9.2
19	ZS65-50-200/11.0	50	48			11
20	ZS65-50-200/15.0	50	58	2950		15
21	ZS65-50-200/18.5	50	68			18.5

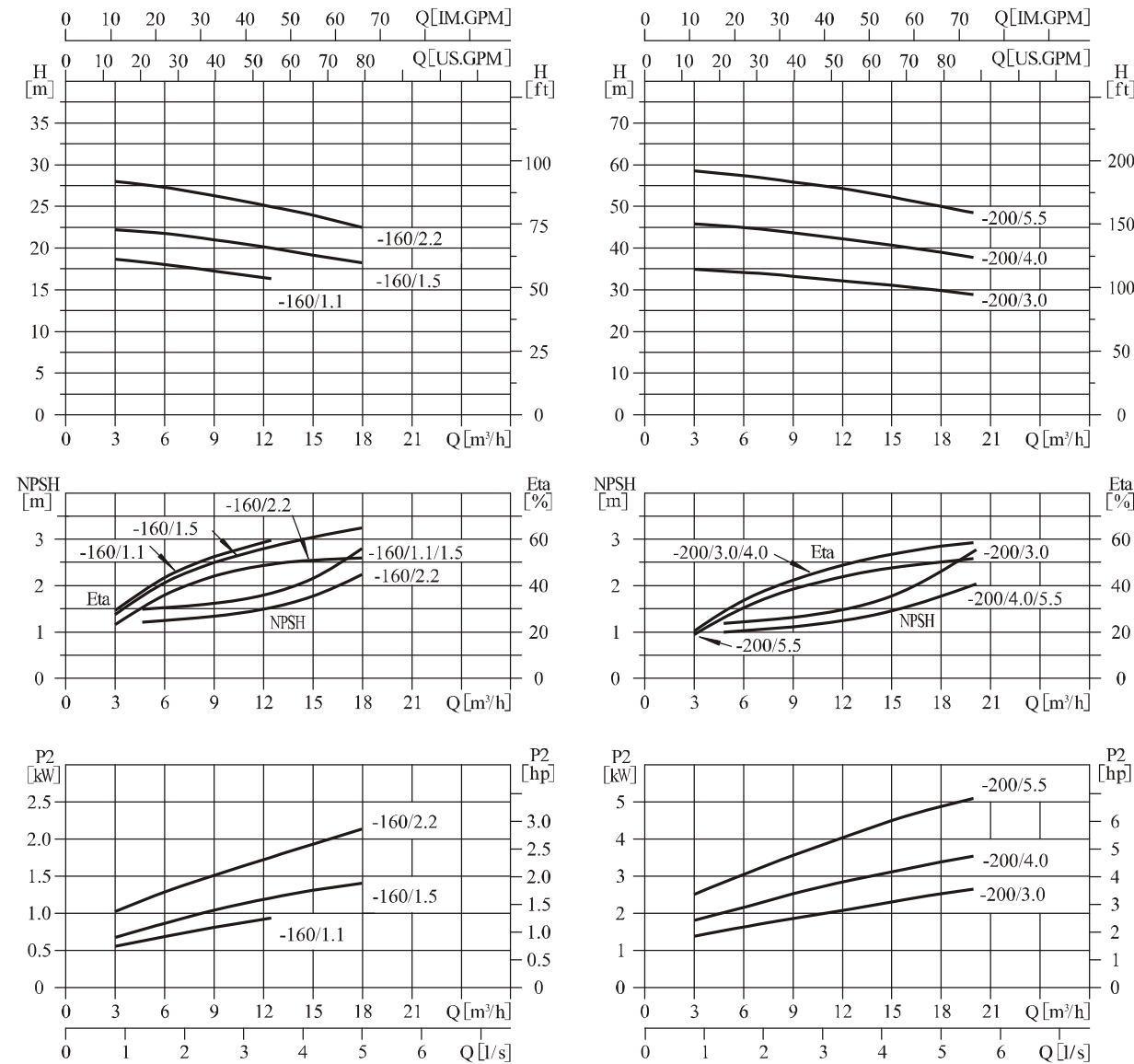
● Product range

60Hz

NO.	Model	Q (m ³ /h)	H (m)	n (r/min)	Standard voltage (V)	
					1×220V	3×380V
					P ₂ (kW)	P ₂ (kW)
1	ZS50-32-160/6 1.1	6.3	18	3450	1.1	1.1
2	ZS50-32-160/6 1.5	12.5	20		1.5	1.5
3	ZS50-32-160/6 2.2	12.5	25		2.2	2.2
4	ZS50-32-160/6 3.0	12.5	32			3
5	ZS50-32-200/6 4.0	12.5	42			4
6	ZS50-32-200/6 5.5	12.5	54			5.5
7	ZS65-40-125/6 1.5	25	13		1.5	1.5
8	ZS65-40-125/6 2.2	25	18		2.2	2.2
9	ZS65-40-125/6 3.0	25	24			3
10	ZS65-40-125/6 4.0	25	28			4
11	ZS65-40-160/6 5.5	25	36			5.5
12	ZS65-40-160/6 7.5	25	46			7.5
13	ZS65-40-200/6 11.0	25	62	3500		11
14	ZS65-50-125/6 3.0	50	13	3450		3
15	ZS65-50-125/6 4.0	50	18			4
16	ZS65-50-125/6 5.5	50	25			5.5
17	ZS65-50-160/6 7.5	50	32			7.5
18	ZS65-50-160/6 9.2	50	40			9.2
19	ZS65-50-200/6 11.0	50	48			11
20	ZS65-50-200/6 15.0	50	58	3500		15
21	ZS65-50-200/6 18.5	50	68			18.5

ZS50-32-***:

50Hz ISO9906 Annex A

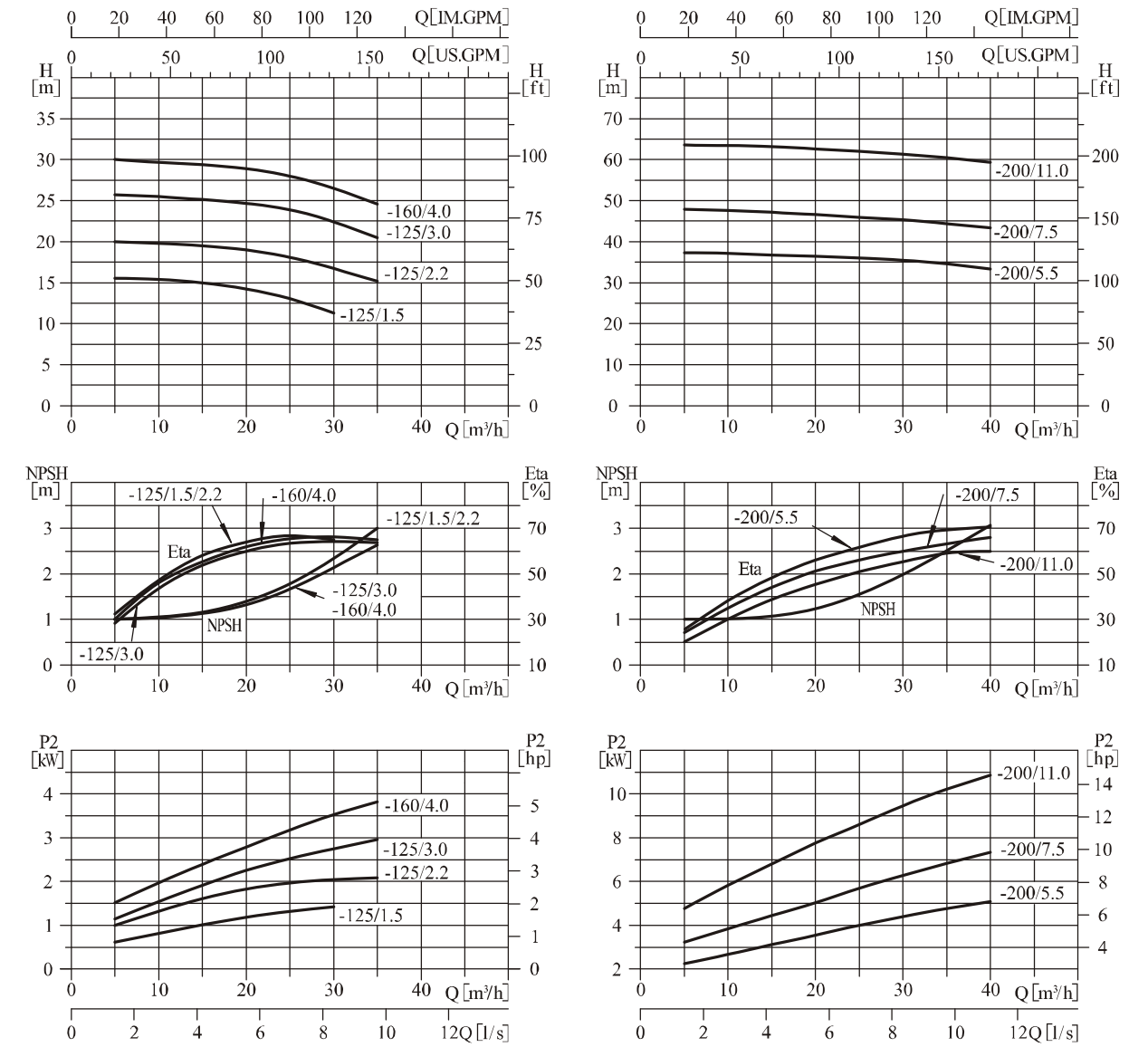


Performance table

Model	Driving motor		Q (m³/h)	3	6.3	9	12.5	15	18	20
	(kW)	(hp)								
ZS50-32-160/1.1	1.1	1.5	H (m)	18.7	18	17.2	16.4			
ZS50-32-160/1.5	1.5	2		22.5	22	21	20	19	18	
ZS50-32-160/2.2	2.2	3		28	27	26.3	25	24	22.5	
ZS50-32-200/3.0	3	4		34.9	34.1	33.3	32	31	29.8	28.9
ZS50-32-200/4.0	4	5.5		45.7	44.8	43.7	42	40.7	39	37.7
ZS50-32-200/5.5	5.5	7.5		58.5	57.2	56	54	52.5	50	48.5

ZS65-40-***:

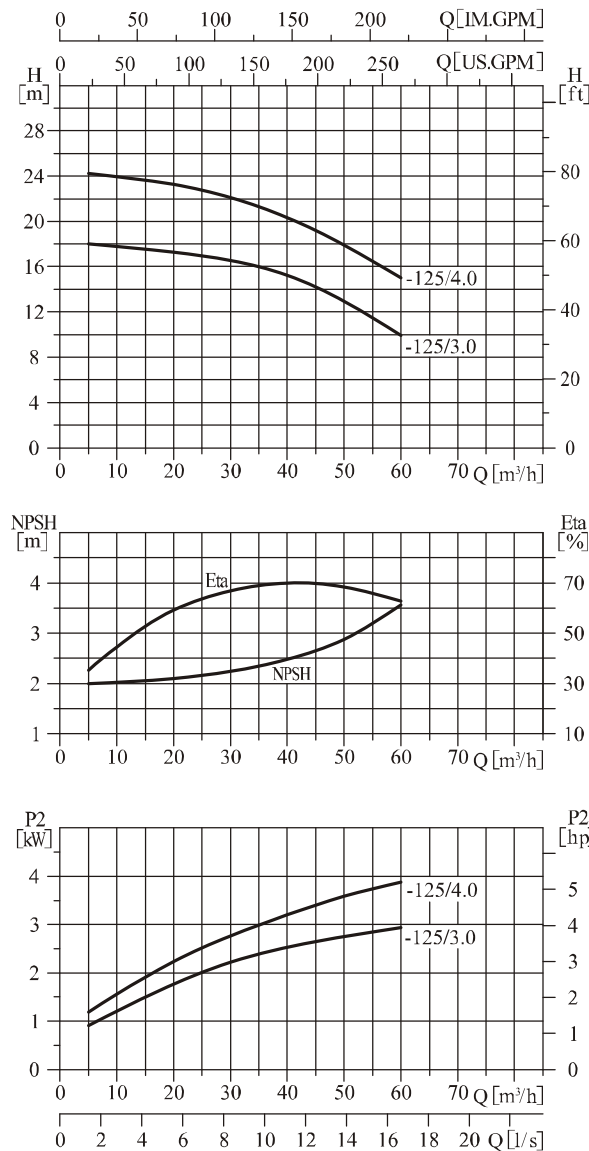
50Hz ISO9906 Annex A



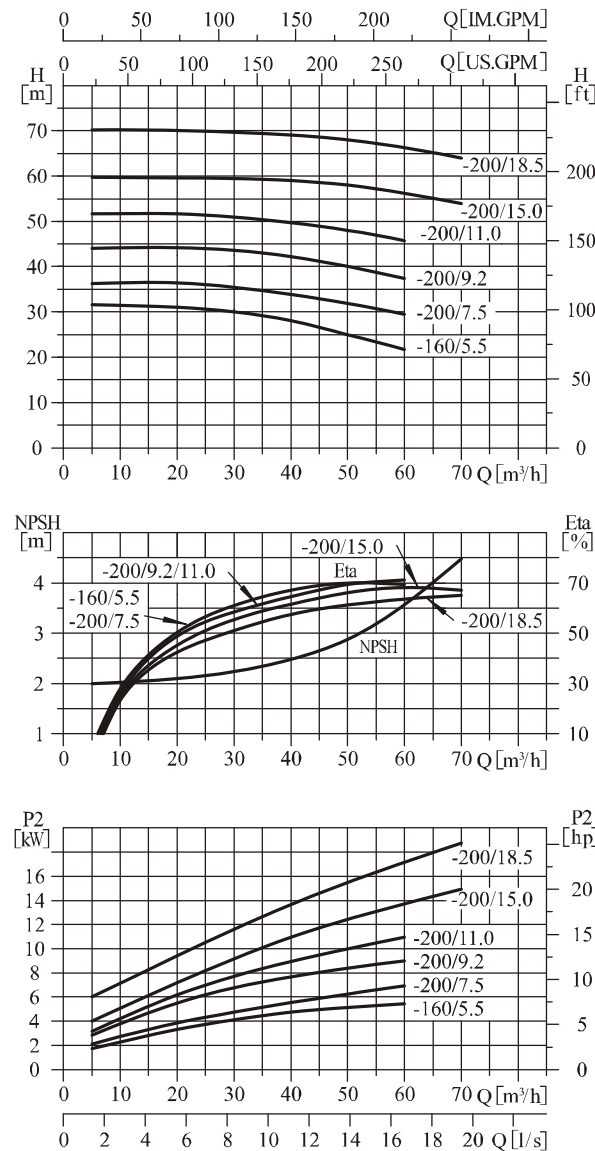
Performance table

Model	Driving motor		Q (m³/h)	5	10	15	20	25	30	35	40
	(kW)	(hp)									
ZS65-40-125/1.5	1.5	2	H (m)	15.5	15.4	15	14.4	13	11.3		
ZS65-40-125/2.2	2.2	3		20	19.7	19.5	19	18	16.7	15.2	
ZS65-40-125/3.0	3	4		25.7	25.3	25.1	24.8	24	22.3	20.3	
ZS65-40-160/4.0	4	5.5		30	29.7	29.3	28.9	28	26.5	24.5	
ZS65-40-200/5.5	5.5	7.5		37.4	37.2	36.7	36.4	36	35.5	34.6	33.3
ZS65-40-200/7.5	7.5	10		48	47.5	47	46.6	46	45.2	44.5	43.3
ZS65-40-200/11.0	11	15		64	63.5	63	62.5	62	61.5	60.5	59

ZS65-50-***:



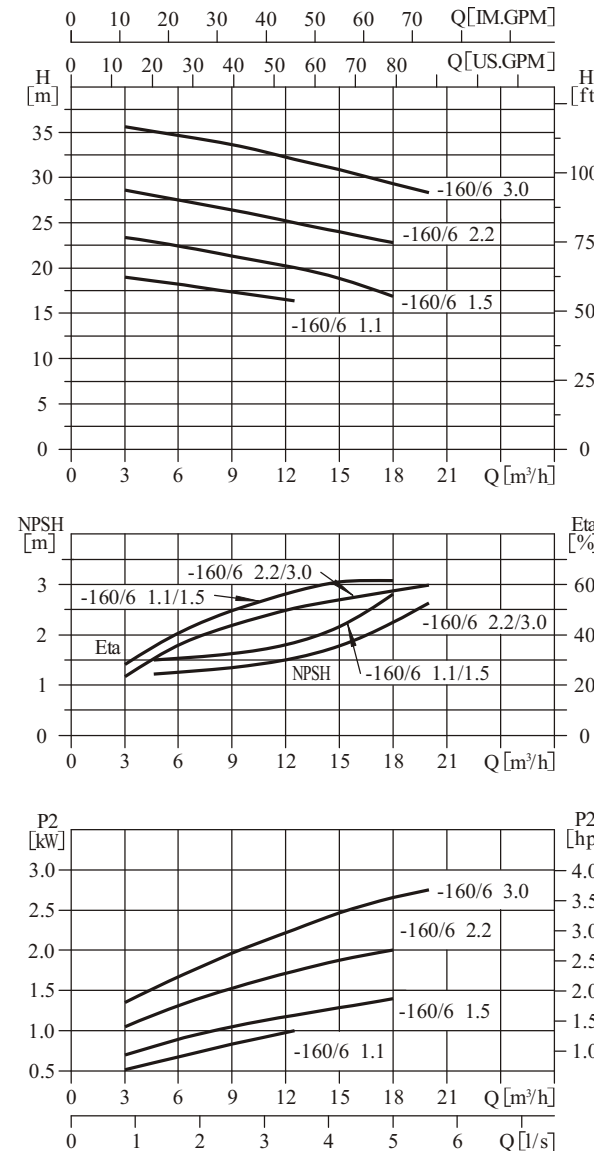
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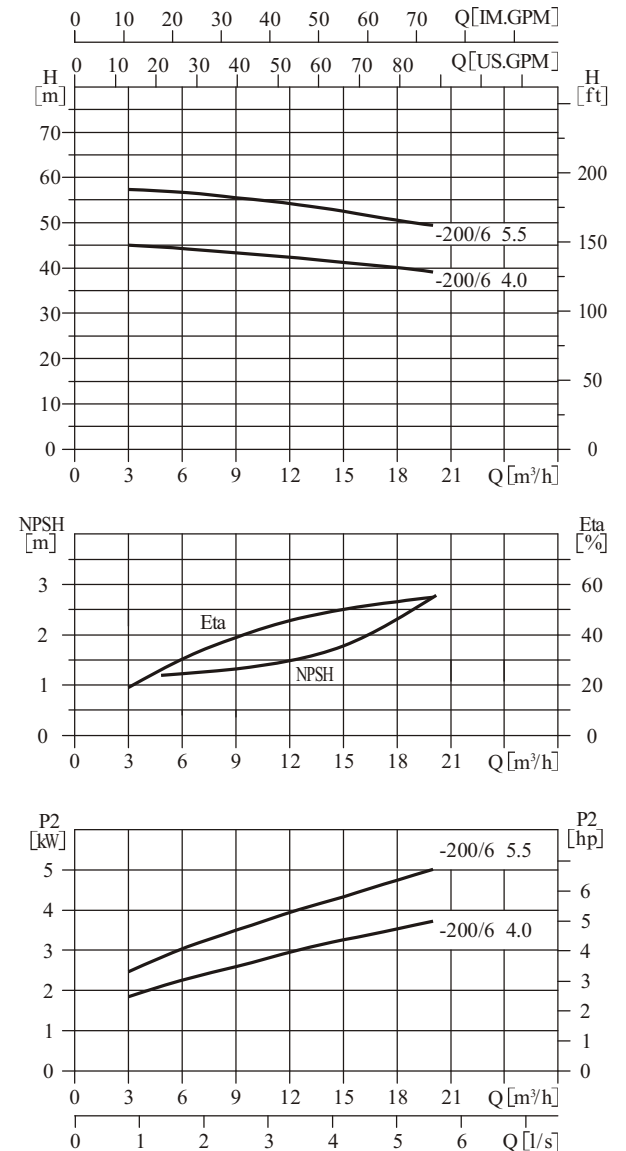
Performance table

Model	Driving motor		Q (m³/h)	H (m)							
	(kW)	(hp)		5	10	20	30	40	50	60	70
ZS65-50-125/3.0	3	4	H (m)	18	17.8	17.2	16.4	15.1	13	10	
ZS65-50-125/4.0	4	5.5		24.2	24.2	23.6	22.6	20.7	18	14.8	
ZS65-50-160/5.5	5.5	7.5		31.6	31.5	31	30	28	25	21.5	
ZS65-50-200/7.5	7.5	10		36.3	36.6	36.4	35.6	34.1	32	29.6	
ZS65-50-200/9.2	9.2	12.5		43.5	43.5	43.5	43	42	40	37.5	
ZS65-50-200/11.0	11	15		51.5	51.5	51	50	49.3	48	45.6	
ZS65-50-200/15.0	15	20		59.7	59.7	59.6	59.5	59	58	56.2	53
ZS65-50-200/18.5	18.5	25		70.2	70.2	70.1	70	69.1	68	66.4	64

ZS50-32-***:



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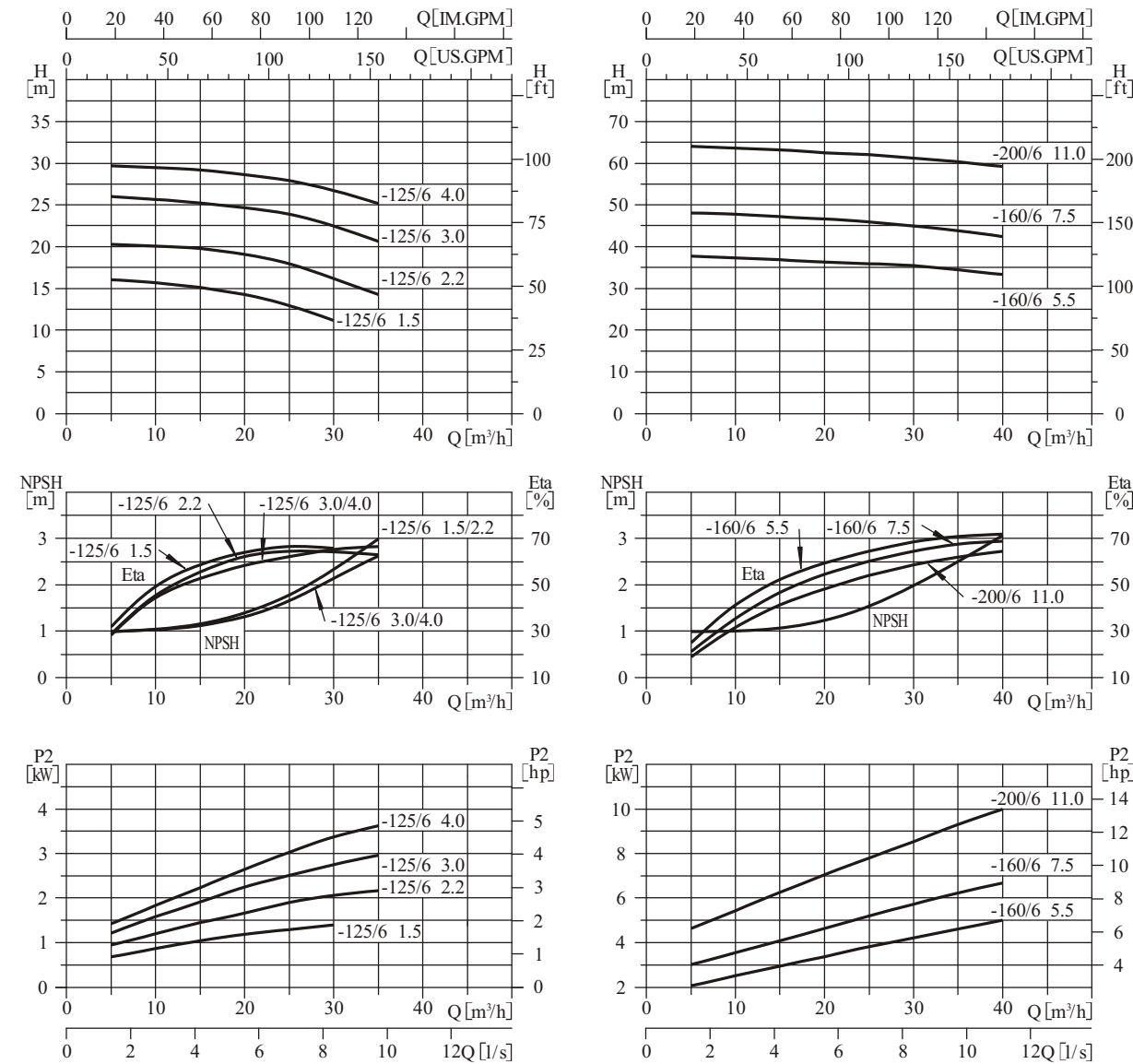


Performance table

Model	Driving motor		Q (m³/h)	H (m)						
	(kW)	(hp)		3	6.3	9	12.5	15	18	20
ZS50-32-160/6 1.1	1.1	1.5	H (m)	19	18	17.3	16.4			
ZS50-32-160/6 1.5	1.5	2		23.4	22.2	21.2	20	18.8	16.8	
ZS50-32-160/6 2.2	2.2	3		28.6	27.4	26.4	25	24	22.8	
ZS50-32-160/6 3.0	3.0	4		35.6	34.5	33.7	32	30.8	29.3	28.4
ZS50-32-200/6 4.0	4.0	5.5		45	44.1	43.3	42	41.2	40	39.1
ZS50-32-200/6 5.5	5.5	7.5		57.5	56.5	55.7	54	52.5	50.5	49.4

ZS65-40-***:

60Hz ISO9906 Annex A

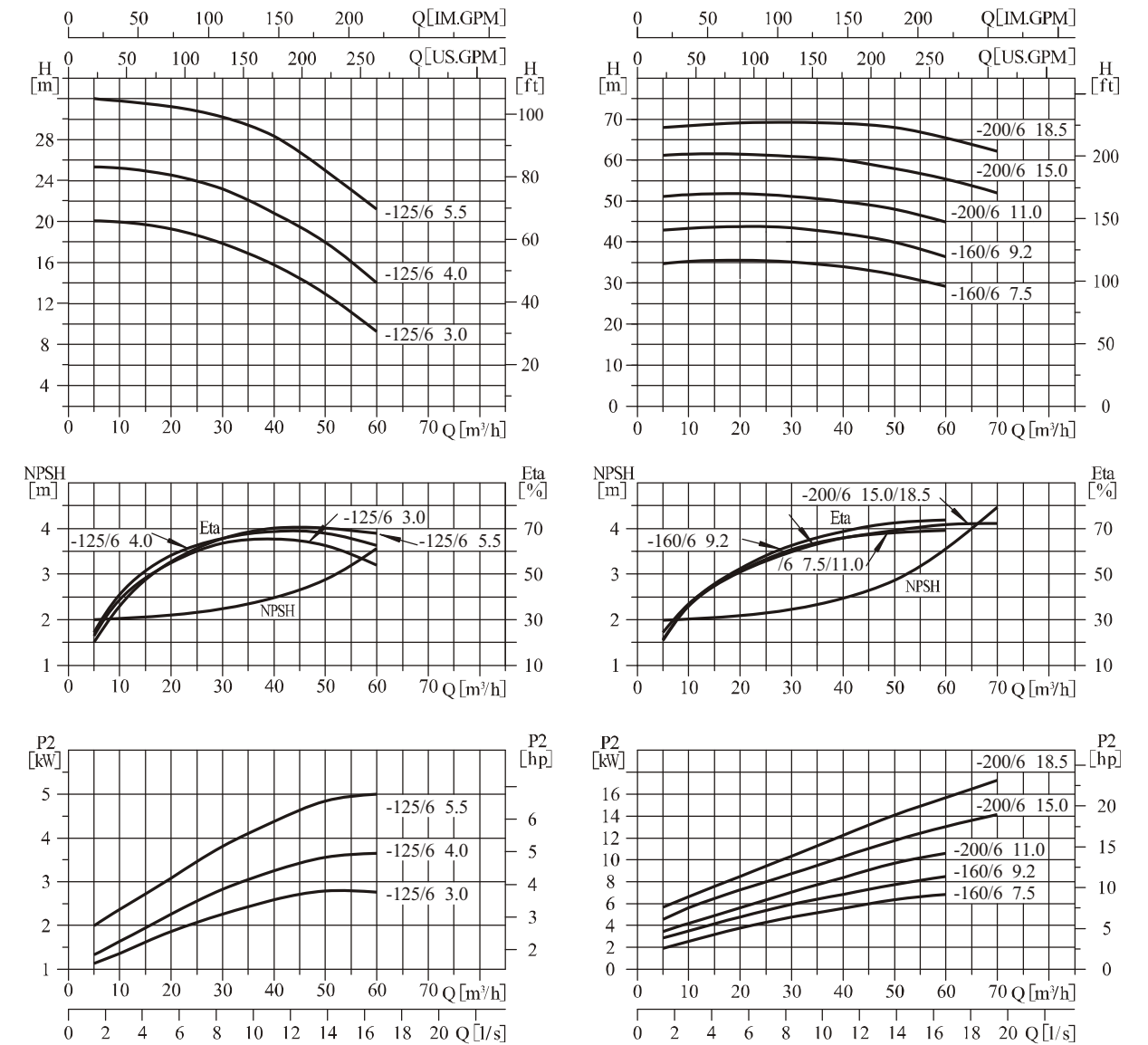


Performance table

Model	Driving motor		Q (m³/h)	5	10	15	20	25	30	35	40
	(kW)	(hp)									
ZS65-40-125/6 1.5	1.5	2	H (m)	16.1	15.6	15.1	14.2	13	11.2		
ZS65-40-125/6 2.2	2.2	3		20.3	20	19.7	19.1	18	16.2	14.3	
ZS65-40-125/6 3.0	3	4		26	25.6	25.2	24.6	24	22.5	20.7	
ZS65-40-125/6 4.0	4	5.5		29.6	29.4	29.1	28.5	28	26.7	25.2	
ZS65-40-160/6 5.5	5.5	7.5		37.8	37.3	36.8	36.3	36	35.5	34.5	33.2
ZS65-40-160/6 7.5	7.5	10		48	47.8	47.2	46.6	46	45	44	42.5
ZS65-40-200/6 11.0	11	15		64	63.6	63.2	62.6	62	61.3	60.5	59.2

ZS65-50-***:

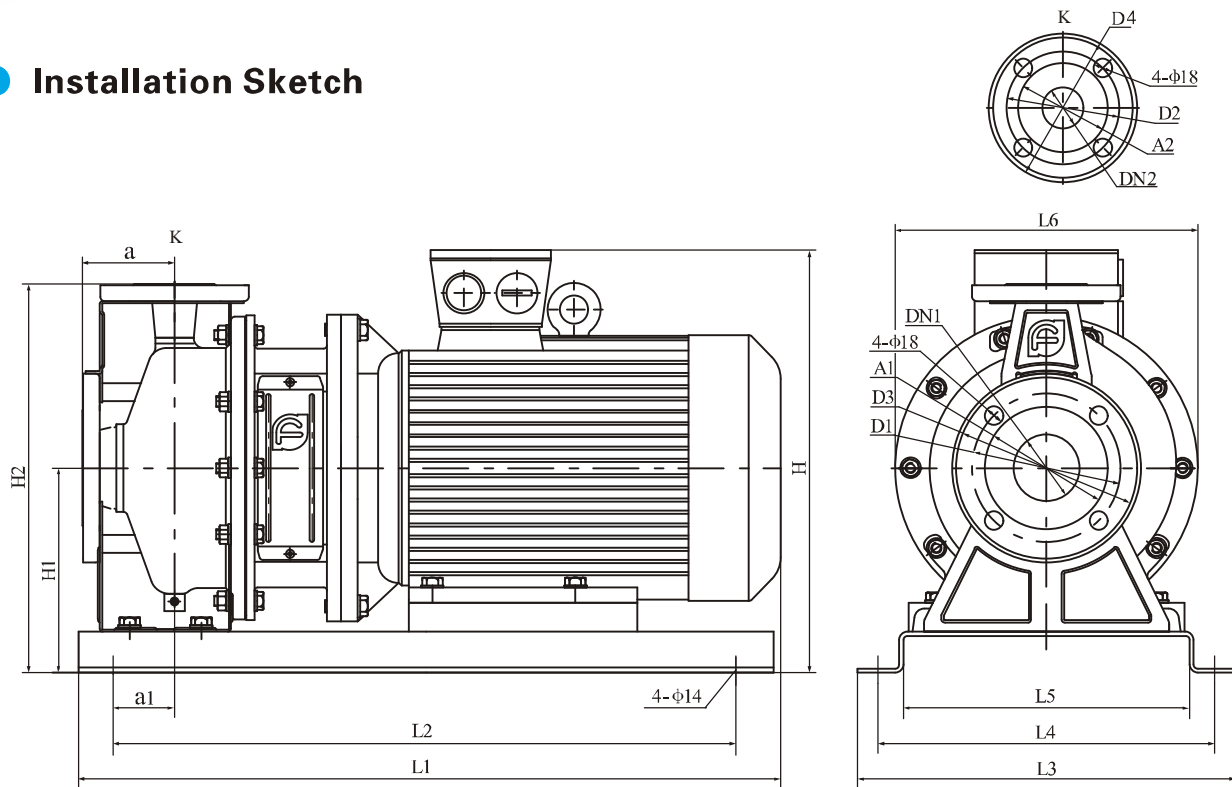
60Hz ISO9906 Annex A



Performance table

Model	Driving motor		Q (m³/h)	5	10	20	30	40	50	60	70
	(kW)	(hp)									
ZS65-50-125/6 3.0	3	4	H (m)	20.1	20	19.3	17.9	15.8	13	9.3	
ZS65-50-125/6 4.0	4	5.5		25.3	25.2	24.5	23.2	20.8	18	14.1	
ZS65-50-125/6 5.5	5.5	7.5		32	31.7	31.2	30.2	28.3	25	21.1	
ZS65-50-160/6 7.5	7.5	10		35	35.3	35.8	35.5	34.2	32	29.3	
ZS65-50-160/6 9.2	9.2	12.5		43	43.2	44	43.5	42	40	37	
ZS65-50-200/6 11.0	11	15		51.2	51.6	51.8	51.2	50	48	45	
ZS65-50-200/6 15.0	15	20		61	61.5	61.5	61.3	60	58	55.5	52
ZS65-50-200/6 18.5	18.5	25		68	68.3	69	69.2	68.9	68	65.4	62

● Installation Sketch



● Size and weight

50Hz

Model	Size (mm)																		Weight (kg)	
	DN1	DN2	A1	A2	D1	D2	D3	D4	a	a1	H	H1	H2	L1	L2	L3	L4	L5		L6
ZS50-32-160/1.1	50	32	98	75	125	100	160	139	80	32	290	152	296	470	370	280	240	192	210	31
ZS50-32-160/1.5	50	32	98	75	125	100	160	139	80	46	307	152	296	500	430	280	240	192	210	37
ZS50-32-160/2.2	50	32	98	75	125	100	160	139	80	46	307	152	296	500	430	280	240	192	210	39
ZS50-32-200/3.0	50	32	98	75	125	100	160	139	84	42	370	200	386	550	460	330	290	242	300	53
ZS50-32-200/4.0	50	32	98	75	125	100	160	139	84	47	393	200	386	560	480	330	290	242	300	58
ZS50-32-200/5.5	50	32	98	75	125	100	160	139	84	50	413	200	386	660	580	370	330	280	300	77
ZS65-40-125/1.5	65	40	118	84	145	110	185	145	80	45	307	152	294	502	430	280	240	192	210	33
ZS65-40-125/2.2	65	40	118	84	145	110	185	145	80	45	307	152	294	502	430	280	240	192	210	35
ZS65-40-125/3.0	65	40	118	84	145	110	185	145	80	45	322	152	294	532	460	300	260	212	250	47
ZS65-40-160/4.0	65	40	118	84	145	110	185	145	80	45	345	152	294	557	480	330	290	242	250	52
ZS65-40-200/5.5	65	40	118	84	145	110	185	145	100	50	413	200	380	680	580	370	330	280	300	78
ZS65-40-200/7.5	65	40	118	84	145	110	185	145	100	50	413	200	380	680	580	370	330	280	300	82
ZS65-40-200/11.0	65	40	118	84	145	110	185	145	100	50	456	200	380	790	690	420	380	330	350	161
ZS65-50-125/3.0	65	50	118	98	145	125	185	160	86	45	342	172	338	548	468	330	290	242	250	49
ZS65-50-125/4.0	65	50	118	98	145	125	185	160	86	45	365	172	338	570	490	330	290	242	250	54
ZS65-50-160/5.5	65	50	118	98	145	125	185	160	100	50	413	200	380	680	580	370	330	280	300	78
ZS65-50-200/7.5	65	50	118	98	145	125	185	160	100	50	413	200	380	680	580	370	330	280	300	82
ZS65-50-200/9.2	65	50	118	98	145	125	185	160	100	50	413	200	380	680	580	370	330	280	300	85
ZS65-50-200/11.0	65	50	118	98	145	125	185	160	100	50	456	200	380	790	690	420	380	330	350	161
ZS65-50-200/15.0	65	50	118	98	145	125	185	160	100	50	456	200	380	790	690	420	380	330	350	171
ZS65-50-200/18.5	65	50	118	98	145	125	185	160	100	50	456	200	380	830	730	420	380	330	350	188

● Size and weight

60Hz

Model	Size (mm)																		Weight (kg)	
	DN1	DN2	A1	A2	D1	D2	D3	D4	a	a1	H	H1	H2	L1	L2	L3	L4	L5		L6
ZS50-32-160/6 1.1	50	32	98	75	125	100	160	139	80	32	290	152	296	470	370	280	240	192	210	31
ZS50-32-160/6 1.5	50	32	98	75	125	100	160	139	80	46	307	152	296	500	430	280	240	192	210	37
ZS50-32-160/6 2.2	50	32	98	75	125	100	160	139	80	46	307	152	296	500	430	280	240	192	210	39
ZS50-32-160/6 3.0	50	32	98	75	125	100	160	139	80	46	322	152	296	532	460	300	260	212	250	47
ZS50-32-200/6 4.0	50	32	98	75	125	100	160	139	84	47	393	200	386	560	480	330	290	242	300	58
ZS50-32-200/6 5.5	50	32	98	75	125	100	160	139	84	50	413	200	386	660	580	370	330	280	300	77
ZS65-40-125/6 1.5	65	40	118	84	145	110	185	145	80	45	307	152	294	502	430	280	240	192	210	33
ZS65-40-125/6 2.2	65	40	118	84	145	110	185	145	80	45	307	152	294	502	430	280	240	192	210	35
ZS65-40-125/6 3.0	65	40	118	84	145	110	185	145	80	45	322	152	294	532	460	300	260	212	250	47
ZS65-40-125/6 4.0	65	40	118	84	145	110	185	145	80	45	345	152	294	557	480	330	290	242	250	52
ZS65-40-160/6 5.5	65	40	118	84	145	110	185	145	100	50	413	200	380	680	580	370	330	280	300	78
ZS65-40-160/6 7.5	65	40	118	84	145	110	185	145	100	50	413	200	380	680	580	370	330	280	300	82
ZS65-40-200/6 11.0	65	40	118	84	145	110	185	145	100	50	456	200	380	790	690	420	380	330	350	161
ZS65-50-125/6 3.0	65	50	118	98	145	125	185	160	86	45	342	172	338	548	468	330	290	242	250	49
ZS65-50-125/6 4.0	65	50	118	98	145	125	185	160	86	45	365	172	338	570	490	330	290	242	250	54
ZS65-50-125/6 5.5	65	50	118	98	145	125	185	160	86	37	385	172	338	680	580	370	330	280	300	78
ZS65-50-160/6 7.5	65	50	118	98	145	125	185	160	86	37	385	172	338	680	580	370	330	280	300	82
ZS65-50-160/6 9.2	65	50	118	98	145	125	185	160	86	37	385	172	338	680	580	370	330	280	300	85
ZS65-50-200/6 11.0	65	50	118	98	145	125	185	160	100	50	456	200	380	790	690	420	380	330	350	161
ZS65-50-200/6 15.0	65	50	118	98	145	125	185	160	100	50	456	200	380	790	690	420	380	330	350	171
ZS65-50-200/6 18.5	65	50	118	98	145	125	185	160	100	50	456	200	380	830	730	420	380	330	350	188



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