FZS / FZM Series

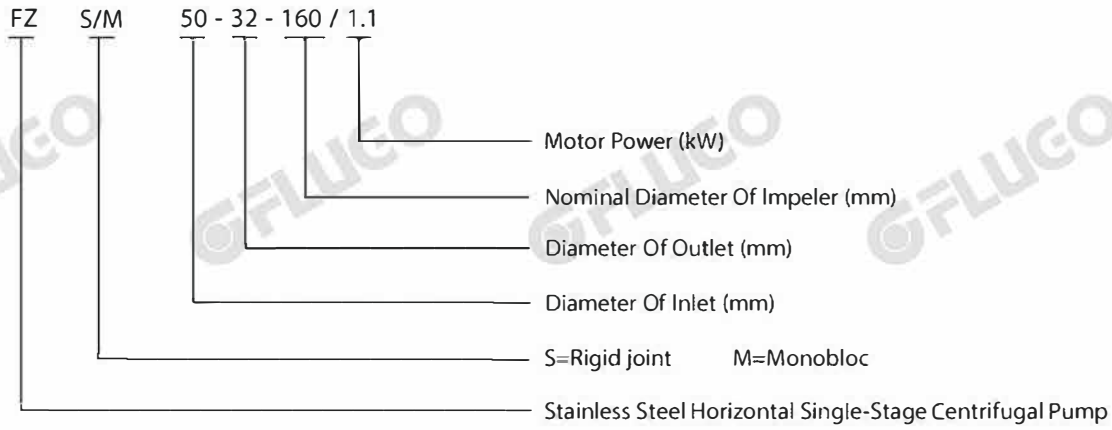
Stainless Steel Horizontal Single Stage Centrifugal Pump

Product Overview

FZS/FZM Series Stainless Steel horizontal single-stage centrifugal pump is made by advanced techniques such as pressing bulging welding of corrosion resistant plate. The range consists of FZS FZM, available in AISI 304 or AISI 316 stainless steel in a monobloc design, with a rigid joint, with a flexible joint and with adjustable foot.

Definition Of Model

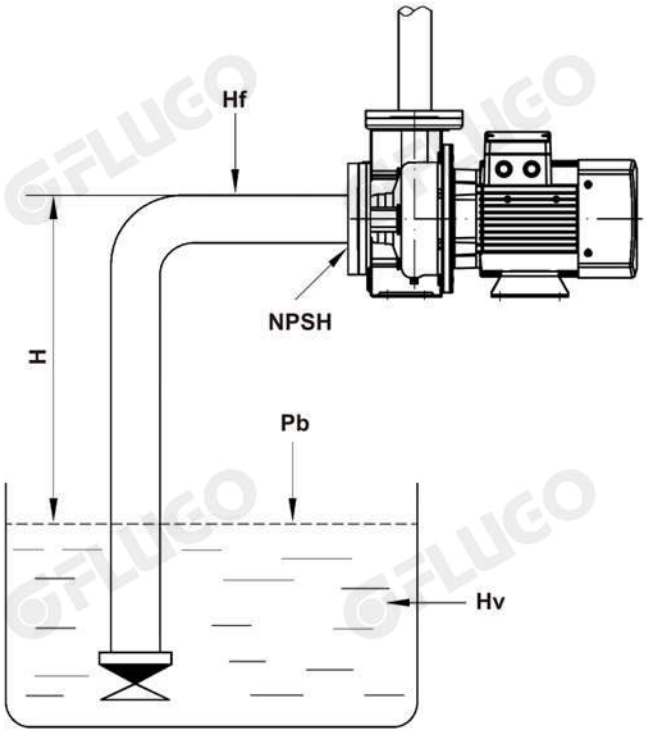
FZS/FZM 50-32-160/1.1

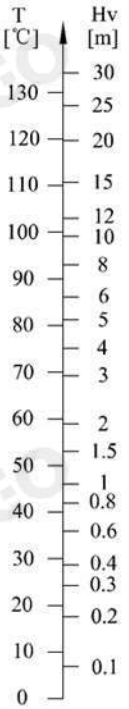


Application

FZS/FZM 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.
- **Transporation 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.
- Farmland irrigation, medicine and sanitation, etc.





Minimum Inlet Pressure NPSH

In case that the pressure in pump is lower than the steam presure 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=Pb x 10.2 - NPSH - Hf-Hv - Hs

Pb - Atmosphere Pressure (bar), In a closed system, Pb means system pressure (bar)
NPSH - Net Positive Suction Head (m), It can be read from the point of Max. Flow shown on NPSH Curve.
Hf - Pipeline loss at the inlet (m), It is in accordance with pipeline possible Max. Flow.
Hv - Steam Pressure (m), It depends on liquid temperature and steam pressure value.
Hs - Safety Margin (m), Minimum 0.5 m 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 wil 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

The shaft connection type of FZS/FZM pump is direct connection. The pump is composed of 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 forced by the tension of the pipeline.
- If the pump is installed outdoor, suitable outer cover must be used to prevent electric element 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 wil not be damaged by lack of phase, unstable voltage, current leakage and overload.
- The pump shall be installed on the base horizontally. Horizontal direction is the inlet for the pump, and vertical direction is the outet for the pump.
- The flange connection dimension are in conformity with the related provisions PN16 in GB/T 17241.6 or IS07005-2/DIN 2501.

Curves

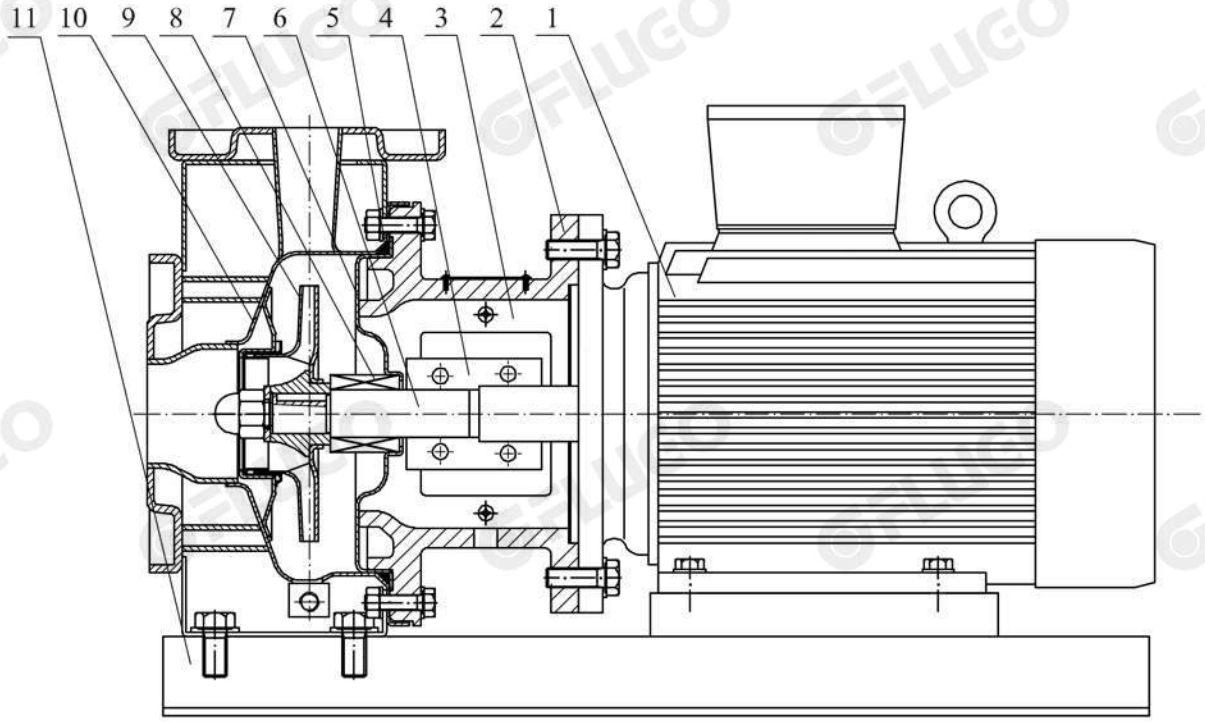
Following conditions are suitable for the performance curves shown bellow :

1. Curve tolerance in conformity to IS09906:2012 Grade 3B.
2. All curves are based on the measured value of motor 3 X 380 V, 50Hz : under the constant speed of 2900rpm or 2950 rpm 60Hz under the constant speed of 3450rpm or 3500rpm.
3. The test medium is clear 20^{0}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-flamable and explosive, not containing the liquid with solid particle and fibe.
- Liquid temperature : -20^{0}C~+100^{0}C.
- Ambient temperature : Up to +40^{0}C.
- Altitude : Up to 1000m.
- Max. Pressure of the system is 10 bar.
- TEFC motor, 2-pole
- Protection class : IP55, Insulation Class : F
- Standard Voltage, 50Hz : 1x 220V 3x380V
- Standard Voltage, 60Hz : 1x 220V 3 x 220V
  3 x 380V
  3 x 460V

Section Drawing



Material

No	Parts	Material	AISI/ASTM
1	Motor		
2	Pump Head	HT200	ASTM25B
3	Guard Plate	06Crl9Nil0	AISI304
4	Shaft	20Crl3/06Crl9Nil0	AISI420/AISI304
5	Oring	NBR	
6	Lining Of Pump Head	06Crl9Nil0	AISI304
7	Mechanical Seal	Carbon/Silicon Carbide	
8	Impeller	06Crl9Nil0	AISI304
9	Casing	06Crl9Nil0	AISI304
10	Base Plate	Q235	ASTMA570

Product Range

No	Model (FZS/FZM)	Q (rf/h)	H (m)	n (i7min)	Standard Voltage (V)	
					IX 220V	3X 380V
					P2 (kW)	P2 (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		11
14	65-50-125/3.0	50	13			3
15	65-50-125/4.0	50	18			4
16	65-50-160/5.5	50	25	2900		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			5.5
23	80-65-125/7.5	100	18	2900		7.5
24	80-65-125/9.2	100	23			9.2
25	80-65-160/11.0	100	27			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	2950		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

FZS/FZM 50-32-***

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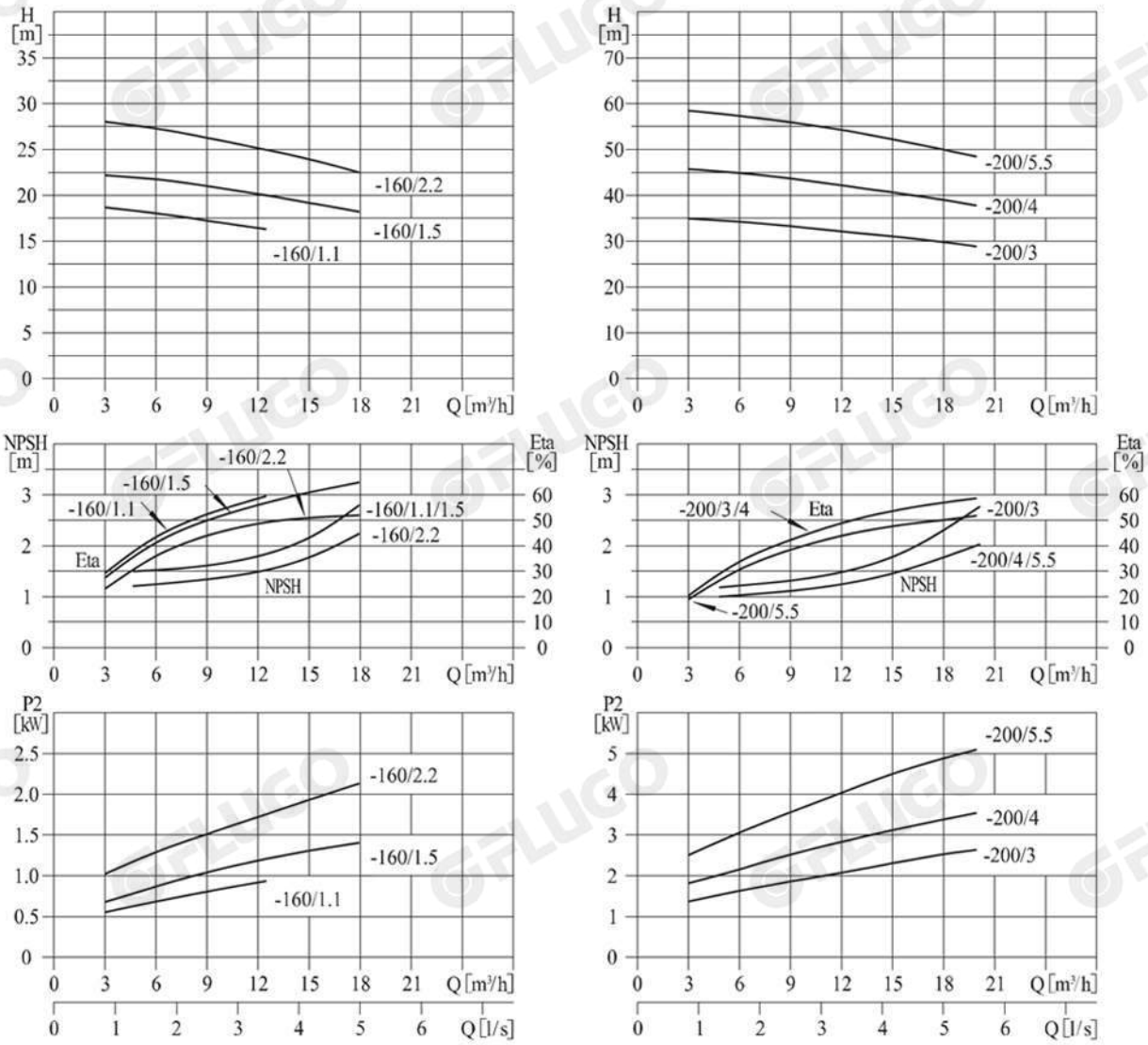

Performance Table

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

FZS/FZM 65-40-***

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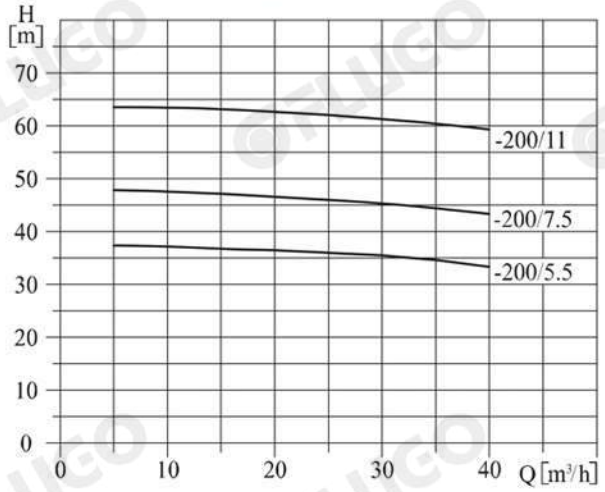

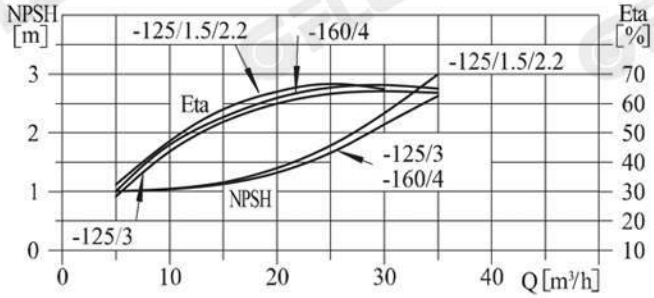

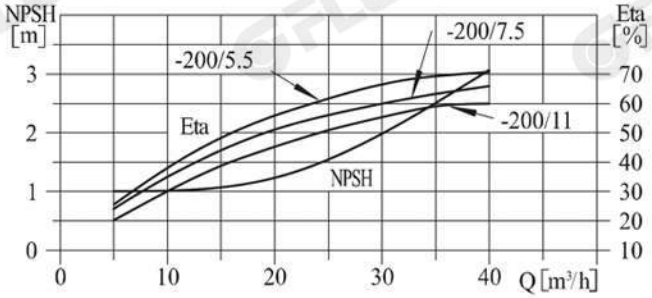

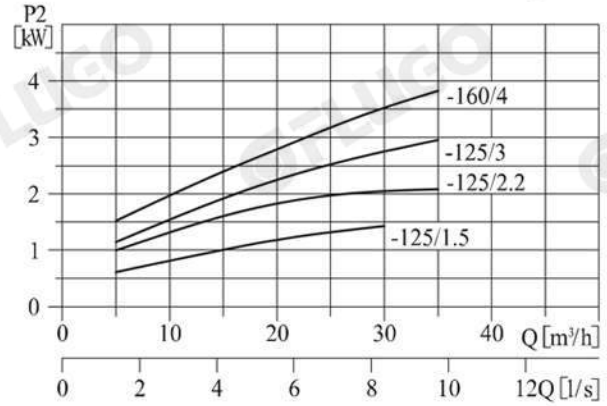

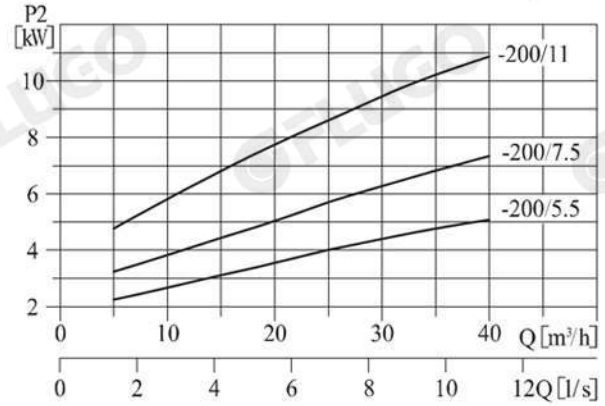

Performance Table

Model (FZS/FZM)	Driving Motor		Q (m³/h)	5	10	15	20	25	30	35	40
	kW	hp									
65-40-125/1.5	1.5	2	H (m)	15.5	15.4	15	14.4	13	11.3		
65-40-125/2.2	2.2	3		20	19.7	19.5	19	18	16.7	15.2	
65-40-125/3.0	3	4		25.7	25.3	25.1	24.8	24	22.3	20.3	
65-40-125/4.0	4	5.5		30	29.7	29.3	28.9	28	26.5	24.5	
65-40-125/5.5	5.5	7.5		37.4	37.2	36.7	36.4	36	35.5	34.6	33.3
65-40-125/7.5	7.5	10		48	47.5	47	46.6	46	45.2	44.5	43.3
65-40-125/11.0	11	15		64	63.5	63	62.5	62	61.5	60.5	59

FZS/FZM 65-50-***

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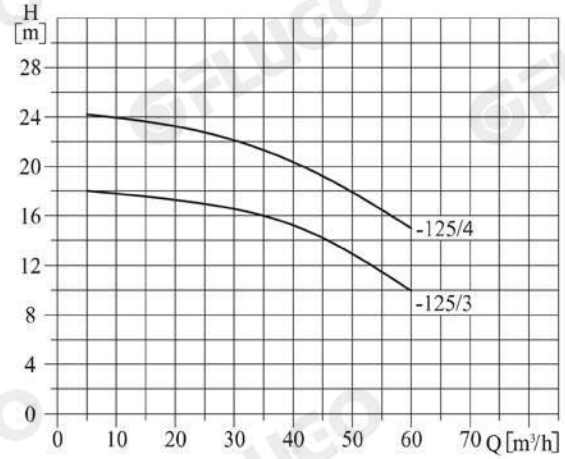

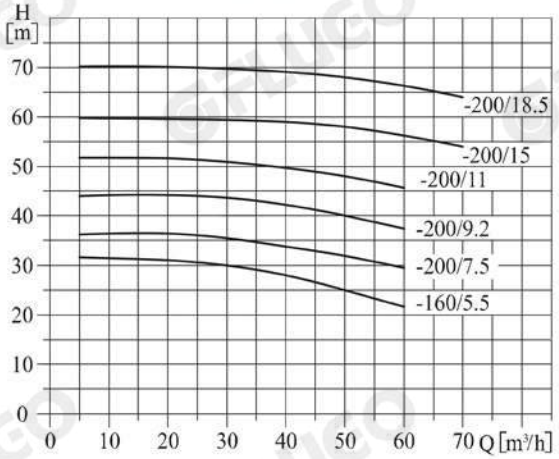

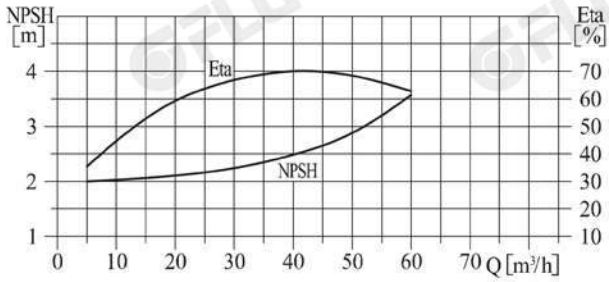

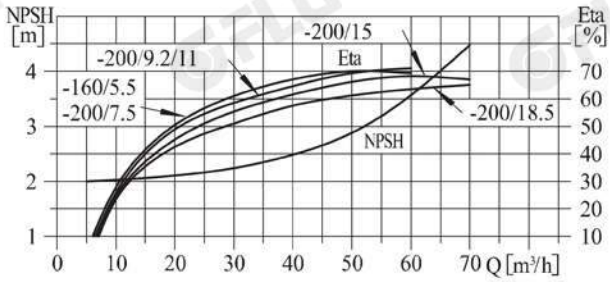

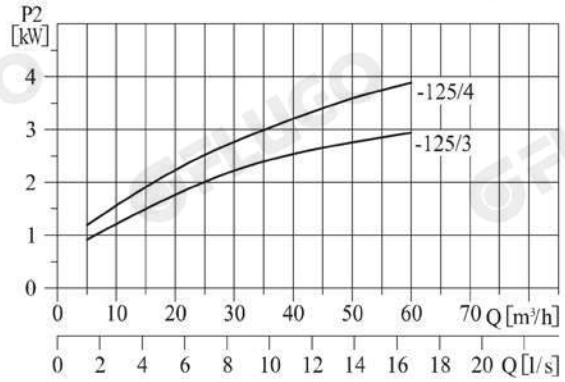

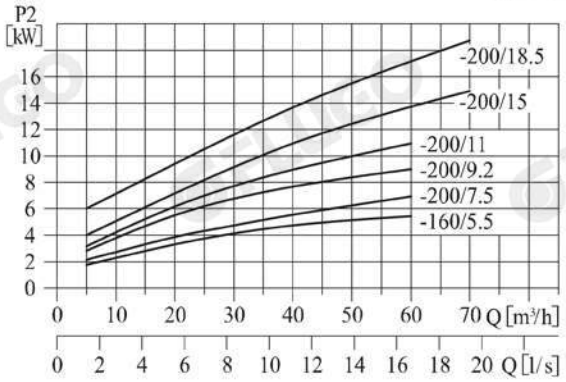

Performance Table

Model (FZS/FZM)	Driving Motor		Q (m³/h)	5	10	20	30	40	50	60	70
	kW	hp									
65-50-125/3.0	3	4	H (m)	18	17.8	17.2	16.4	15.1	13	10	
65-50-125/4.0	4	5.5		24.2	24.2	23.6	22.6	20.7	18	14.8	
65-50-160/5.5	5.5	7.5		31.6	31.5	31	30	28	25	21.5	
65-50-200/7.5	7.5	10		36.3	36.6	36.4	35.6	34.1	32	29.6	
65-50-200/9.2	9.2	12.5		43.5	43.5	43.5	43	42	40	37.5	
65-50-200/11.0	11	15		51.5	51.5	51	50	49.3	48	45.6	
65-50-200/15.0	15	20		59.7	59.7	59.6	59.5	59	58	56.2	53
65-50-200/18.5	18.5	25		70.2	70.2	70.1	70	69.1	68	66.4	64

FZS/FZM 80-65-***

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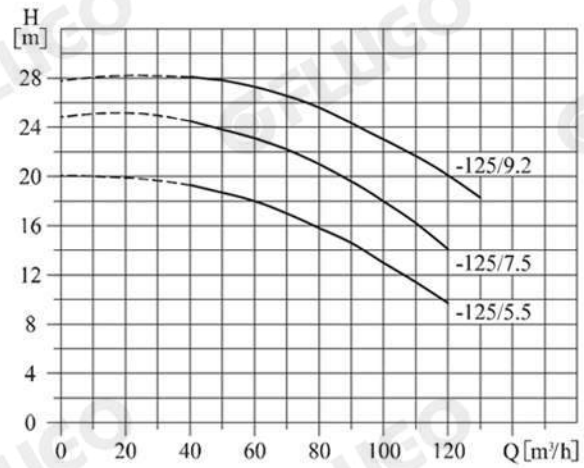

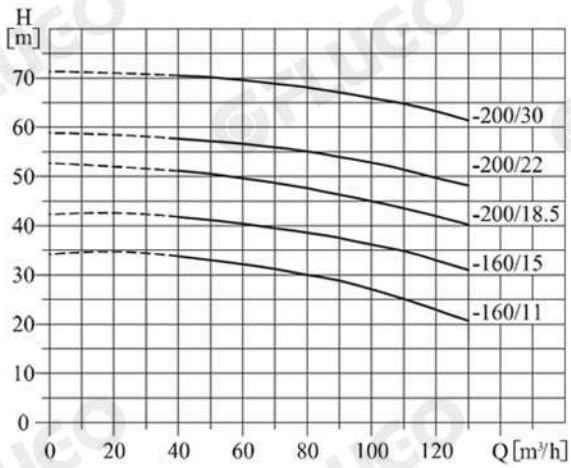

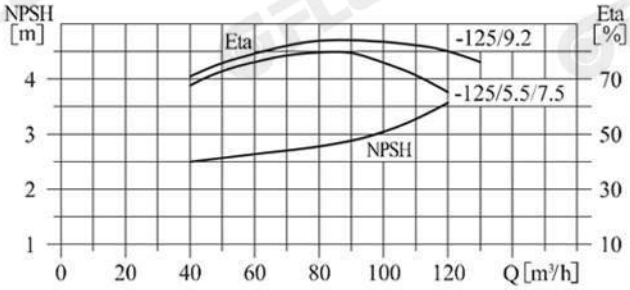

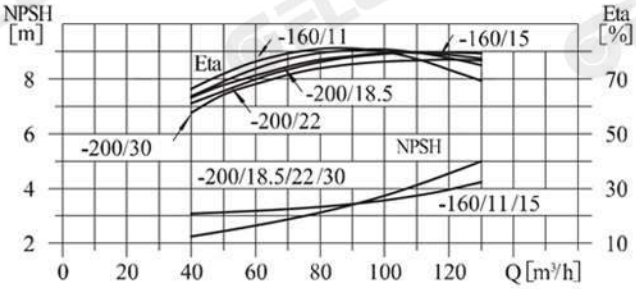

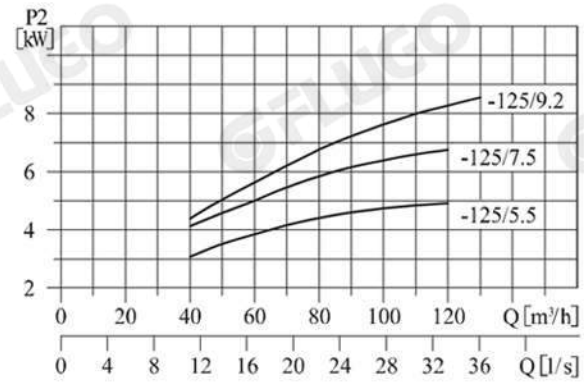

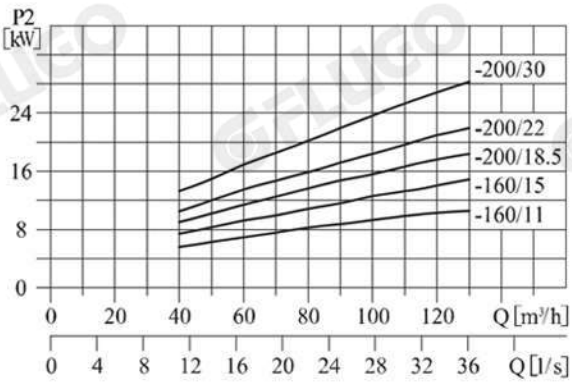

Performance Table

Model (FZS/FZM)	Driving Motor		Q (m³/h)	40	50	60	70	80	90	100	110	120	130
	kW	hp											
80-65-125/5.5	5.5	7.5		19.3	18.7	18	17	15.8	14.8	13	11.4	9.7	
80-65-125/7.5	7.5	10		24.5	23.8	23.1	22.2	21	19.6	18	16.2	14.1	
80-65-125/9.2	9.2	12.5	H	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	15	(m)	33.9	33	32.2	31.3	29.9	28.8	27	25.1	22.9	20.7
80-65-160/15.0	15	20		41.8	41.1	40.4	39.5	38.6	37.6	36	34.8	33	31
80-65-200/18.5	18.5	25		51	50.5	49.6	48.7	47.6	46.3	45	43.5	42.2	40.2
80-65-200/22.0	22	30		57.7	57.2	56.8	55.9	55.1	54	53	51.6	49.7	48.2
80-65-200/30.0	30	40		70.2	70.2	69.6	68.9	68.2	67.1	66	64.6	63.3	61.4

FZS/FZM 100-80-***

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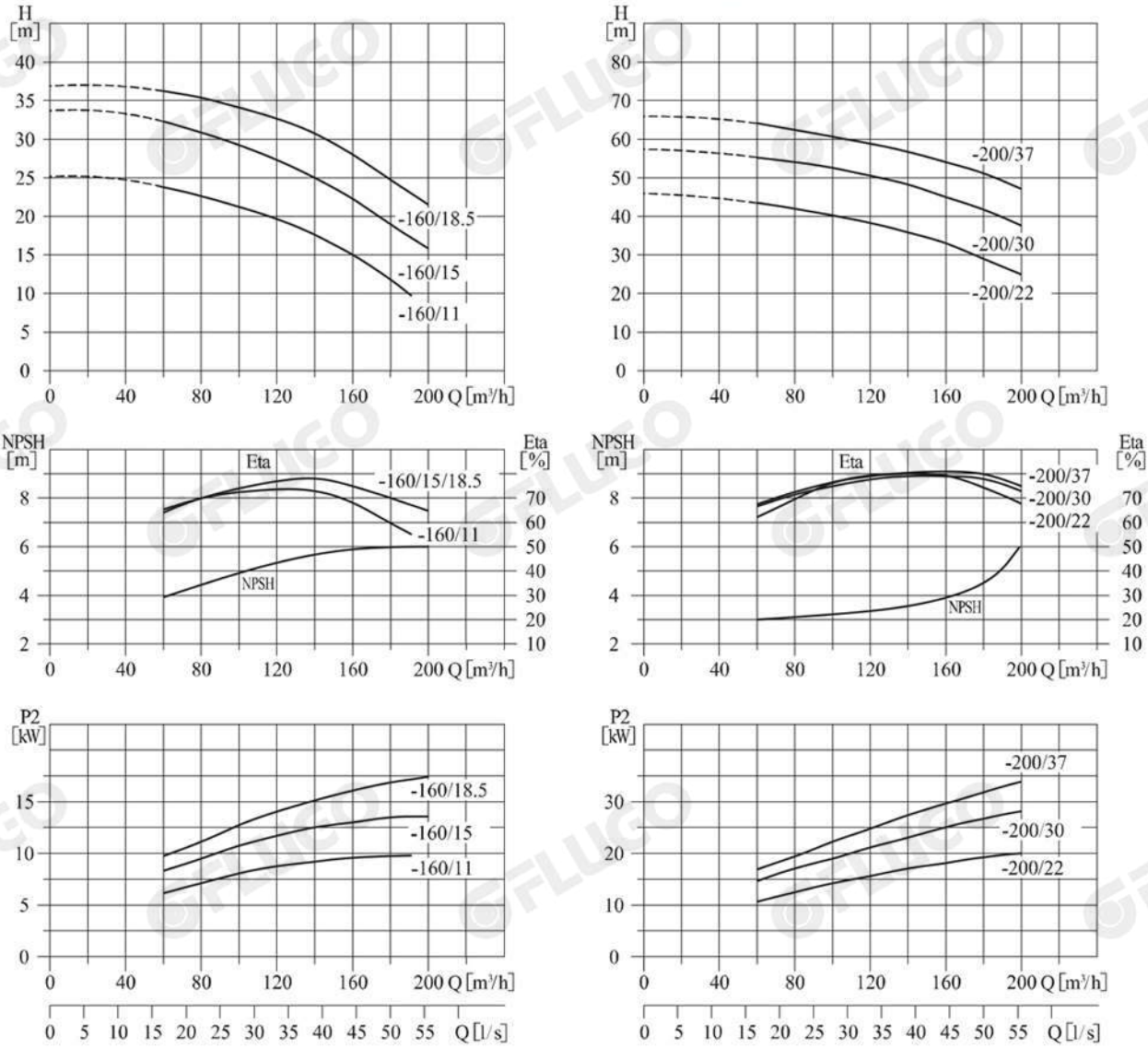

Performance Table

Model	Driving Motor		Q (m³/h)	60	80	100	120	140	160	180	192	200
	kW	hp										
FZS/FZM100-80-160/11.0	11	15	H (m)	23.8	22.7	21.1	19.7	17.6	15	11.8	9.7	
FZS/FZM100-80-160/15.0	15	20		32.3	30.8	29.1	27.2	25.1	22	18.8		16.1
FZS/FZM100-80-160/18.5	18.5	25		36.2	35.2	33.8	32.7	31	28	24.8		21.5
FZS/FZM100-80-200/22.0	22	30		43.5	42	39.7	38.3	35.9	33	29		24.9
FZS100-80-200/30.0	30	40		55.4	54.1	52.6	50.5	48.2	45	41.9		37.6
FZS100-80-200/37.0	37	50		64.1	62.5	61	59	57.4	54	51.2		47.1