

Flow-Power Curve Operating Instructions

1. Functional logic description:

A water pump generates kinetic energy by rotating a mechanical rotor, which ultimately increases the head or flow rate. When the pump works at a specific operating point, its flow rate and head are also determined, and the energy consumed by the pump is also determined at this time.

The basic energy consumption of a water pump is determined by its flow rate when other factors are constant, so the energy efficiency of a water pump will be determined by its flow rate. The power of a pump is the amount of energy that can provide the required flow and head, and is closely related to the efficiency of the pump. Generally speaking when the flow rate increases, the power required by the pump will also increase accordingly. Generally speaking the curve will have a small initial power at low flow rates, rise and peak as the flow rate increases, and then fall again.

The flow-power curve of water pump is a curve used to describe the relationship between the power consumed and the flow rate that can be provided when the pump is running, with the flow rate as the horizontal coordinate and the power as the vertical coordinate.

2. Instruments used in the test: SI23-D5-7R5G, photovoltaic water pump test platform, PC, serial tools, host computer, keyboard

3. The test method: set different power and flow curve points to test whether the flow rate of C02-31 under different power is consistent with the theory.

4. The operation steps: according to the function code for parameter setting, set their own five power curve points and flow curve points, pay attention to the size of the relationship from small to large to set, while you can monitor C02.31 [flow rate], C04.10 [active power], C00.10 [output power] and C00.01 [output frequency].

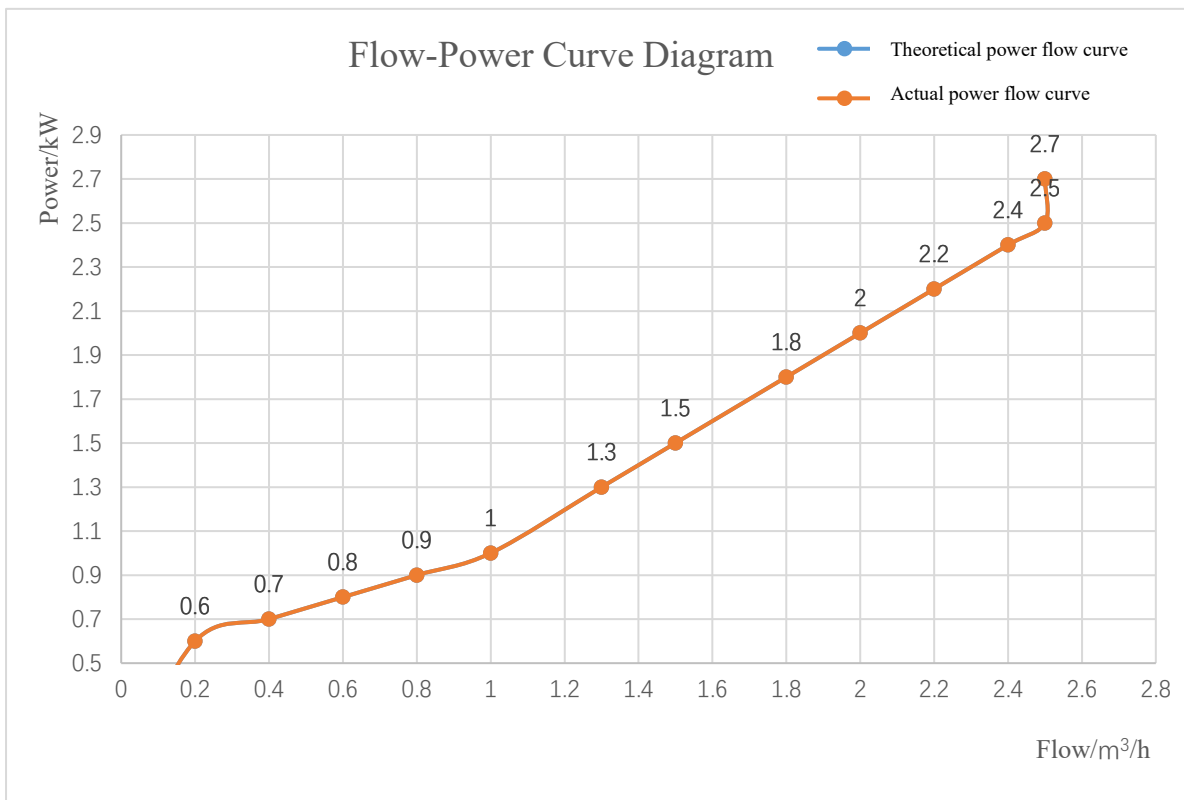
5. Test records:

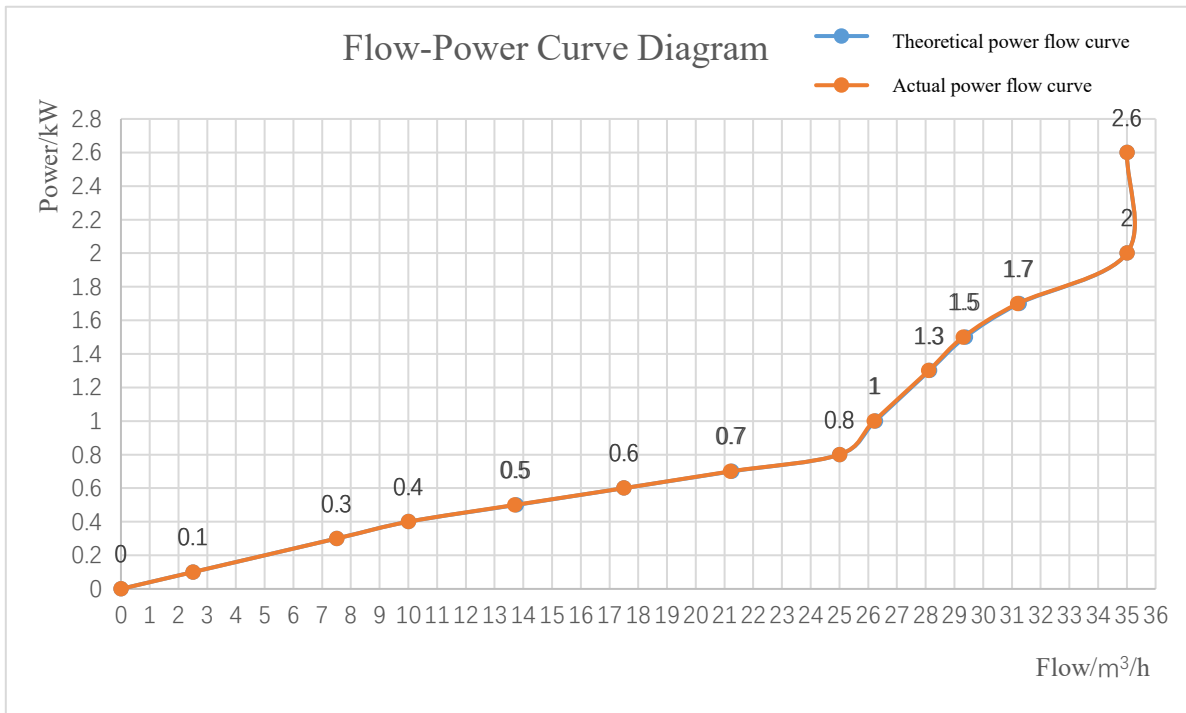
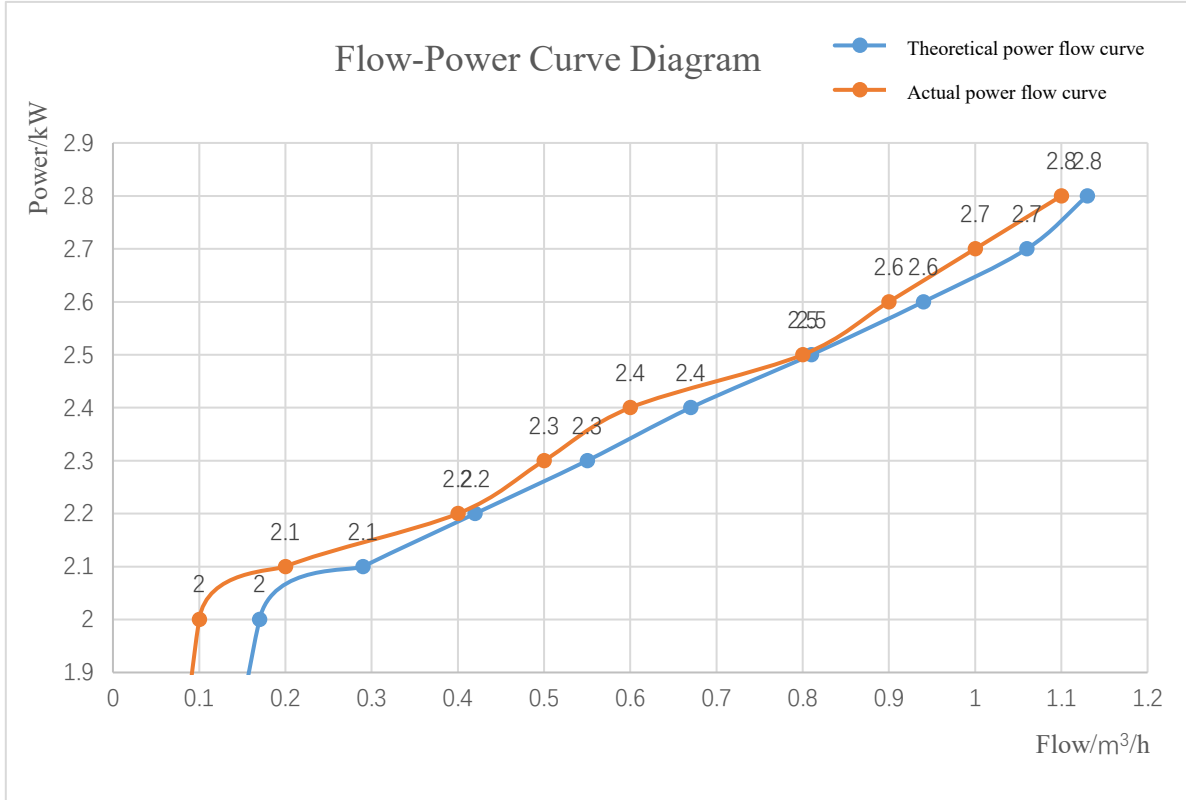
1) Setting curve

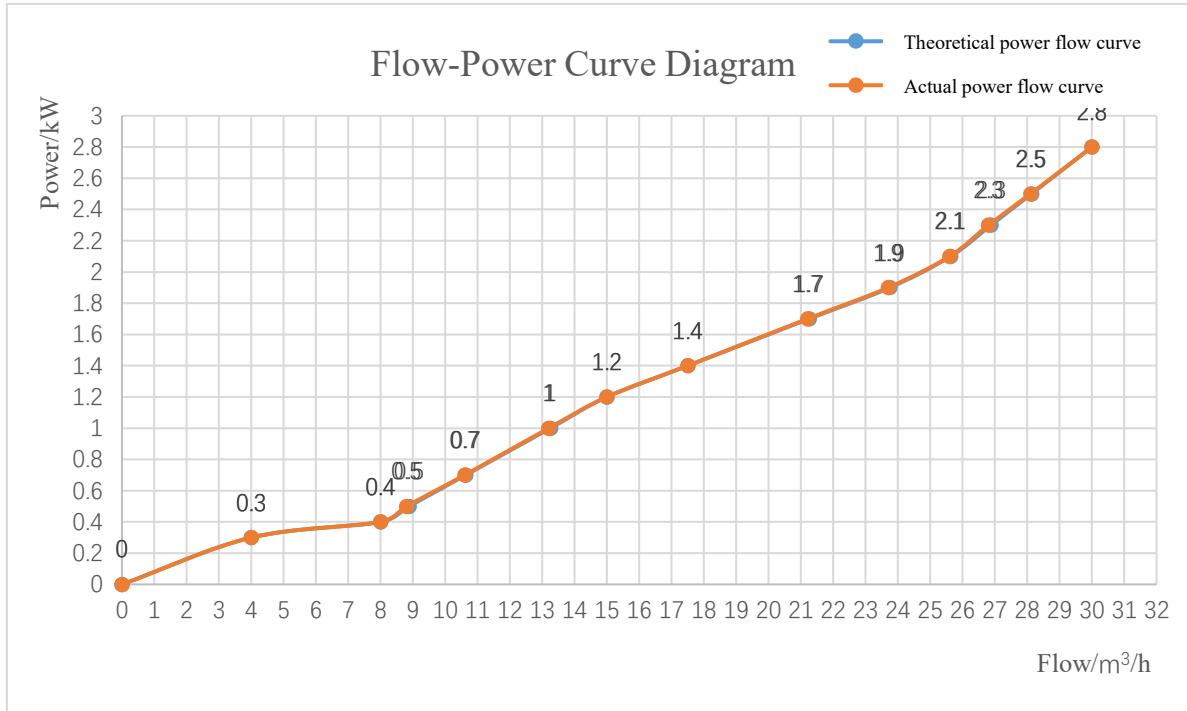
Custom curve 1		Custom curve 2	
Power/kW	Flow/m ³ /h	Power/kW	Flow/m ³ /h
FE.32=0.5	FE.37=0	FE.32=1.87	FE.37=0

FE.33=1	FE.38=1	FE.33=2.65	FE.38=1
FE.34=1.5	FE.39=1.5	FE.34=3.07	FE.39=1.5
FE.35=2	FE.40=2	FE.35=3.54	FE.40=2
FE.36=2.5	FE.41=2.5	FE.36=3.91	FE.41=2.5
Custom curve 3		Custom curve 4	
Power/kW	Flow rate/m ³ /h	Power/kW	Flow rate/m ³ /h
FE.32=0	FE.37=0	FE.32=0.2	FE.37=0
FE.33=0.4	FE.38=10	FE.33=0.4	FE.38=8
FE.34=0.8	FE.39=25	FE.34=1.2	FE.39=15
FE.35=1.6	FE.40=30	FE.35=2	FE.40=25
FE.36=2	FE.41=35	FE.36=2.8	FE.41=30

2) Test curve

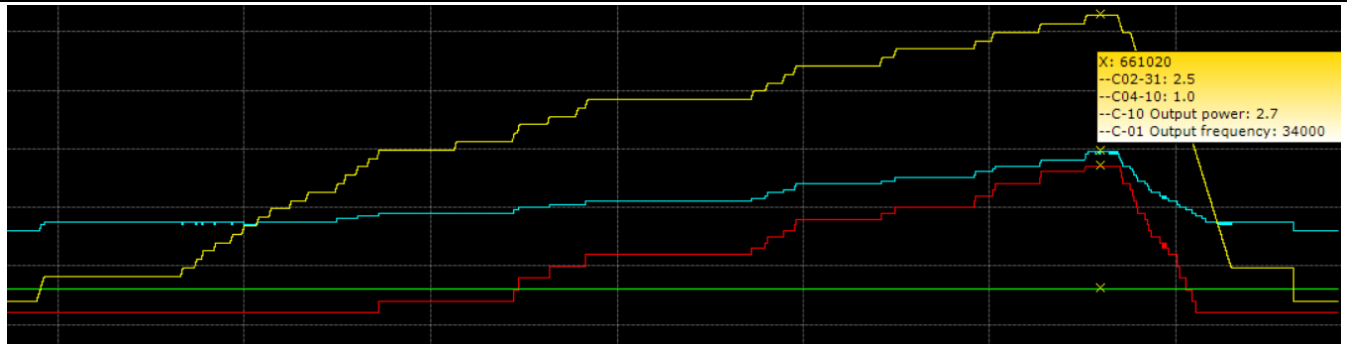




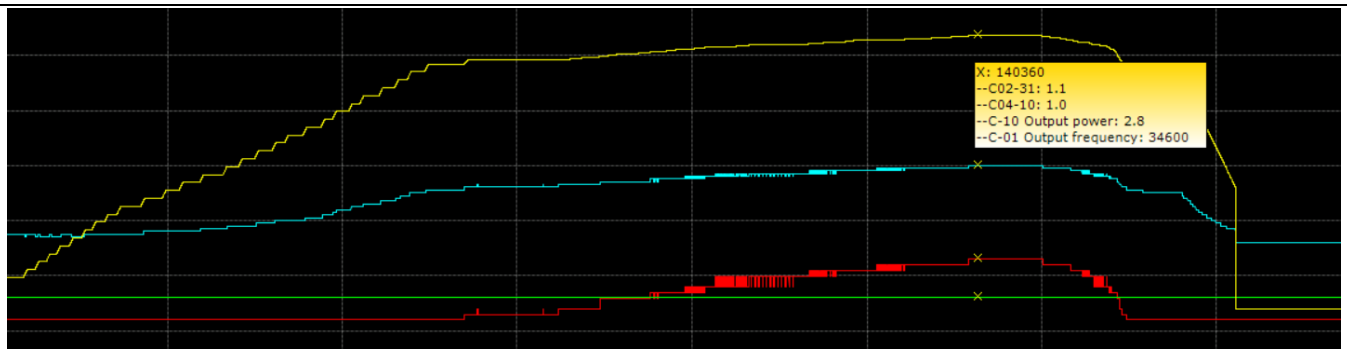


Curve 1				Curve 2			
Power	Theoretical flow	C02-31	Flow deviation	Power	Theoretical flow	C02-31	Flow deviation
0~0.5	0	0	0	0~1.9	0	0	0
0.6	0.2	0.2	0	2.0	0.17	0.1	0.07
0.7	0.4	0.4	0	2.1	0.29	0.2	0.09
0.8	0.6	0.6	0	2.2	0.42	0.4	0.02
0.9	0.8	0.8	0	2.3	0.55	0.5	0.05
1.0	1.0	1.0	0	2.4	0.67	0.6	0.07
1.3	1.3	1.3	0	2.5	0.81	0.8	0.01
1.5	1.5	1.5	0	2.6	0.94	0.9	0.04
1.8	1.8	1.8	0	2.7	1.06	1.0	0.06
2.0	2.0	2.0	0	2.8	1.13	1.1	0.03
2.2	2.2	2.2	0	-	-	-	-
2.4	2.4	2.4	0	-	-	-	-
2.5	2.5	2.5	0	-	-	-	-

2.7	2.5	2.5	0	-	-	-	-
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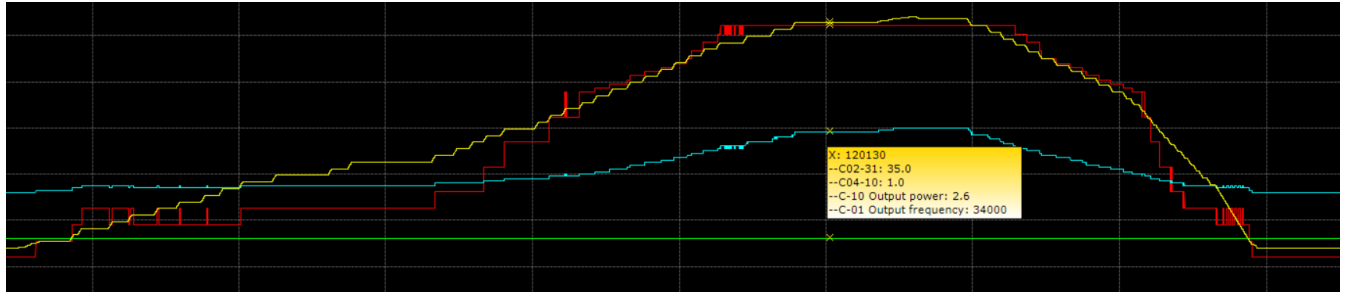
Custom curve 1



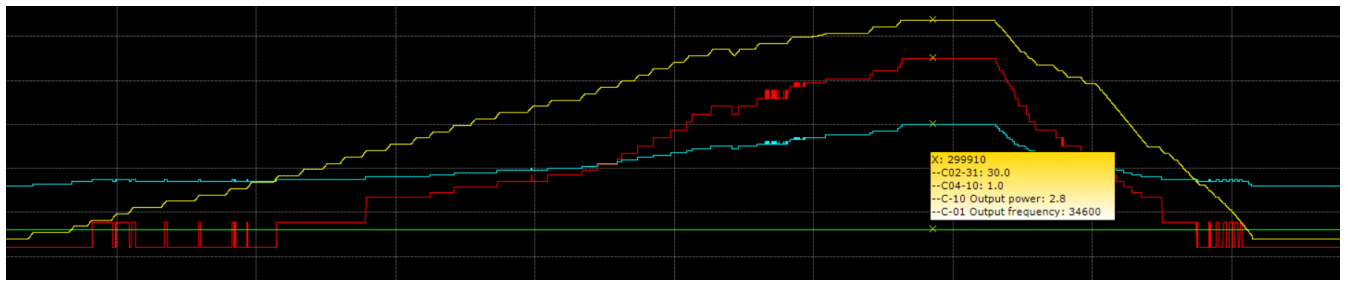
Custom curve 2: Rated frequency reached

Curve 3				Curve 4			
Power	Theoretical flow	Power	Theoretical flow	Power	Theoretical flow	Power	Theoretical flow
0	0	0	0	0~0.2	0	0	0
0.1	2.5	2.5	0	0.3	4	4	0
0.3	7.5	7.5	0	0.4	8	8	0
0.4	10	10	0	0.5	8.88	8.8	0.08
0.5	13.75	13.7	0.05	0.7	10.63	10.6	0.03
0.6	17.5	17.5	0	1.0	13.25	13.2	0.05
0.7	21.25	21.2	0.05	1.2	15	15	0
0.8	25	25	0	1.4	17.5	17.5	0
1.0	26.25	26.2	0.05	1.7	21.25	21.2	0.05
1.3	28.13	28.1	0.03	1.9	23.75	23.7	0.05
1.5	29.38	29.3	0.08	2.1	25.63	25.6	0.03

1.7	31.25	31.2	0.05	2.3	26.88	26.8	0.08
2.0	35	35	0	2.5	28.13	28.1	0.03
2.6	35	35	0	2.8	30	30	0



Custom curve 3



Custom curve 4