



宏旭

HORNG SHIUH

豎軸式

離心泵浦

VERTICAL CENTRIFUGAL

PUMP



FST



## 特點

- 1 效率高**  
與一般臥式泵浦比較，此型泵浦的效率最高，所需動力最小，可節省運轉費用。
- 2 吸入揚程不受限制**  
一般陸上型泵浦的吸入揚程都在9M以內，本型泵浦葉輪深入水中，故吸入揚程不受限制。
- 3 按裝面積最小**  
如採用立式馬達，則直接裝設於出口座上，而大幅減少泵浦裝設所佔用的面積。
- 4 軸馬力變化小**  
此型泵浦的軸馬力隨著出水量大小，而不會有顯著的變化，操作時比陸上型泵浦更穩定可靠。
- 5 操作方便**  
因葉輪置於水面下，不必利用輔助措施(如真空泵浦)即可隨時啟動送水，可遙控操作。
- 6 保養容易**  
構造簡單，組成件少，保養維修容易。

## Features

- 1.Highest Efficiency**  
Compared to a general horizontal pump, this type of pump exhibits higher efficiency and requires less power, so as to save operating cost.
- 2.Unlimited lifting head**  
Normally, the lifting head of conventional land-type pump is limited to within 9m. In comparison, this type of pump is submerged in water and will not be limited by the lifting head.
- 3.Smallest installation occupancy**  
When using a vertical-type motor, it can be directly mounted on the discharge block to significantly reduce the area required for mounting the pump.
- 4.Less variation of shaft horsepower**  
The shaft horsepower type of pump will not present visible change along with the level of discharge. In operation, it is more stable and reliable compared to the land-type pump.
- 5.Convenient for operation**  
As the impeller is configured under water, it can be started for supplying water without the aid of auxiliary device (e.g. vacuum pump); further, it is also available for remote operation.
- 6.Easier for maintenance**  
Being simple in construction and with few components, it is easier for servicing and maintenance.

## 用途

農業，園藝深井抽水等灌溉用。  
原水、海水等抽送用。  
工廠、事業單位等各種用途給水用。

## Application

- Agricultural and gardening irrigation and deep well pumping.
- Raw water and seawater pumping.
- Factory, industrial facility water supply.

## 主要構造

本高效率豎軸多段式泵浦，主要有下列組件：

- 1 入水殼**  
以阻力最小的鐘形(類似喇叭口)做成吸入口形狀，而提高泵浦性能。
- 2 導輪**  
在本多段式泵浦段與段之間，特別增設擴散式通道的導輪，以大幅提高泵浦效率。
- 3 葉輪**  
本型葉輪各部份係經詳細的流場計算，嚴謹的鑄造過程，使葉輪各處表面內外光滑平順，是本型泵浦獲致最高效率的主要原因。且各個葉輪均經動平衡校正，使泵浦在運轉時平穩不振動。

## Main Components

This High-efficient Vertical Shaft Multi-step Pump consists of the following components:

- 1.Suction bellmouth**  
Designed in a bellmouth shape (similar to trumpet shape) it presents the smallest resistance for enhancing the performance of the pump.
- 2.Guide Vane**  
Diffusing-type channel Guide Vane is specially added between the steps of this multi-step pump to significantly enhance the pump efficiency.
- 3.Impeller**  
The detailed flowing field has been computed for each portion of the impeller. In addition, stringent casting process is also executed to present flat and smooth internal and external surfaces and is the main reason for achieving the highest efficiency for this type of pump. Further, dynamic balance calibration is also performed for each individual impeller to allow the pump to run steadily without vibration.



**4 軸心**  
由三部份(泵軸、柱軸、頂軸)所組成，以高級鋼料和不銹鋼為素材，經精密加工製成，強度夠、耐用性高。在結構設計上，開放式直軸使維修方便。除此之外，可依據特殊需要，在軸外側多加一層保護管，亦即密閉式設計，以隔離泵浦軸心和原液。

**5 柱管**  
採用耐銹性極優的碳鋼管(SGP)製成，每支標準長度2M，管與管以凸緣對接，接合處加裝中間拖架，以精確固定軸的中心位置。

**6 出口座**  
特殊的流道設計，流體垂直向上轉為水平送出時，能量耗損最小。

**7 軸承**  
軸向推力設計-採用最高級的止推軸承，其大小和負荷量均經審慎的評估，使設計壽命達20,000小時以上。

**8 潤滑**  
**開放式軸心**  
如原水為不含雜質、常溫或者其他特殊性質者，直接以原水作為柱管以下各處軸承的潤滑液。  
**密閉式軸心**  
可依特殊使用場合，而有多種設計供選擇。

**4. Shaft**  
It is composed of three sections, the Pump Shaft, Column Shaft and Head Shaft, which are manufactured from high-class steel and stainless steel. They are fabricated through precision processing to exhibit tough strength and higher durability. In structural design, the open-type straight shaft is also easier for maintenance. Further, another layer of protection tube can also be mounted on the shaft according to specific demand, i.e. closed type of design for separating the pump shaft and the liquid.

**5. Column Pipe**  
It is fabricated from carbon steel (SGP) that possesses excellent corrosion resistance. The standard length of each pipe is 2m and all pipes are butt-connected with a flange, with a shafting bracket mounted at the jointing area to accurately secure the center position of the shaft.

**6. Discharge Head**  
Special flowing path design to achieve minimum energy consumption when the fluid turns from upward vertical flowing to horizontal conveying.

**7. Bearings**  
Axial thrust design: The highest class of thrust bearings are selected for which, their dimensions and load have been evaluated as achieving over 20,000 hours of design life.

**8. Lubrication**  
**Open-type Shaft**  
If the raw water being pumped contains no impurities and is presenting room temperature or other special properties, then the raw water will be used as the liquid for lubricating the bearings under the column pipe.  
**Closed-type Shaft**  
Several designs are provided for option according to specific application.

## 傳動方式

- (1) 標準方式  
使用立式(凸緣型)馬達直接傳動。
- (2) 特殊選用配備  
汽、柴油引擎-使用皮帶或者齒輪方式聯結。

## Transmission Method

- (1) Standard method  
Transmitted by Vertical (flange-type) motor directly.
- (2) Special component  
Gasoline, diesel engine - Coupled with the belt or the gear.

## 迴轉方向

由泵浦上方看，反時鐘方向迴轉。

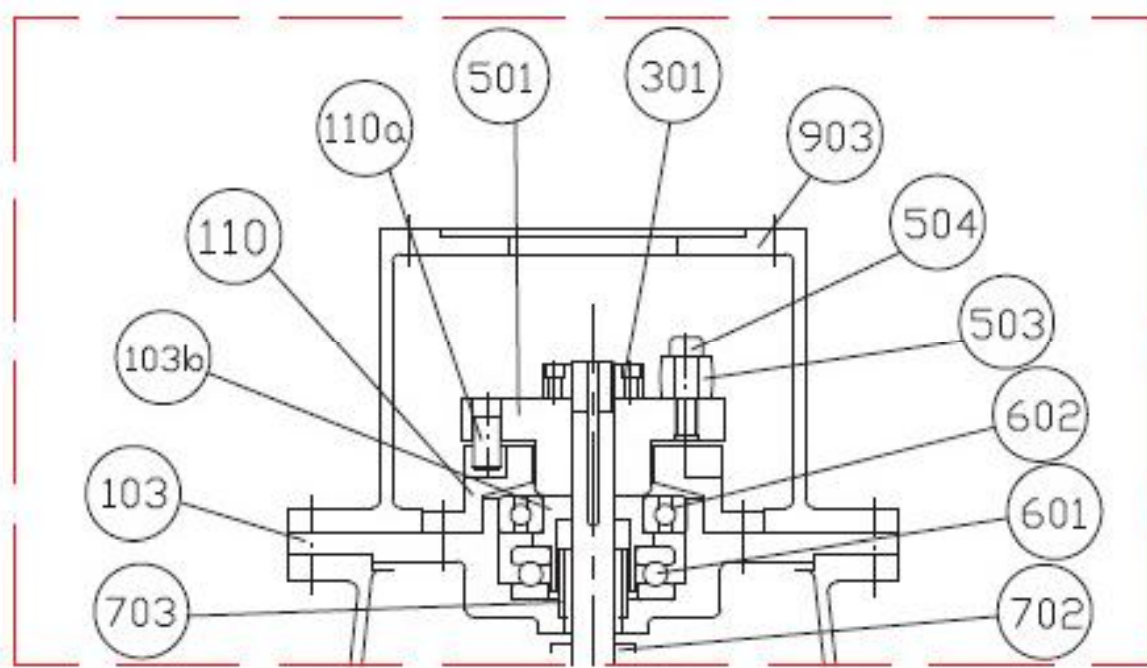
## Rotating Direction

Counter-clockwise rotating when viewed from above the pump.

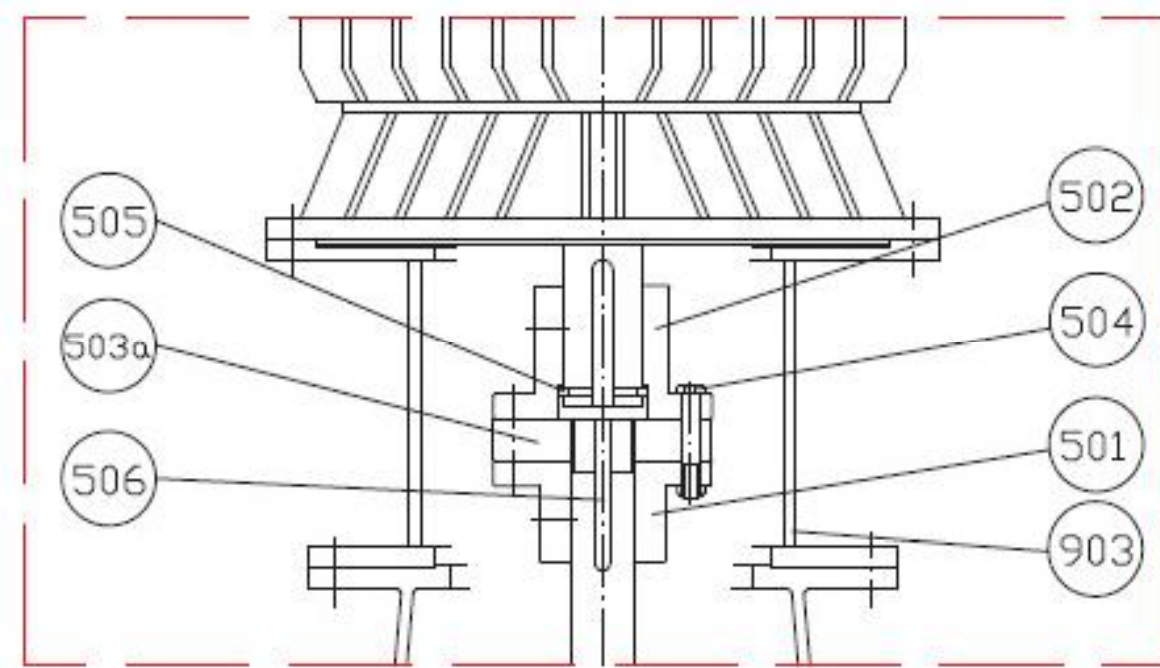








馬力30HP4P以下, 軸承箱VT-180以下 (軸承用牛油潤滑)  
Below 30HP4P, Bearing housing: below VT-180  
(Lubricated with bearing grease)



馬力250HP4P以上(軸推力由馬達承受)  
Over 250HP4P  
(the shaft thrust sustained by the motor)

零件表(Materials of Construction)

編號 No.	名稱 Component	材料Material			編號 No.	名稱 Component	材料Material		
		A	B	C			A	B	C
101	出口座 Discharge head	FC200	SCS13A	SCS14A	401	填料蓋 Gland	FC200	SCS13A	SCS14A
102	入口殼 Suction bellmouth	FC200	SCS13A	SCS14A	403	填料 Packing	V#133	V#7133	V#7133
102b	水中軸承 Bearing	BC6	BC6/Teflon/ Carbon	BC6/Teflon/ Carbon	405	機械軸封 Mechanical Seal			
103	軸承箱 Bearing housing	FC200	FC200	FC200	406	軸封押蓋 Seal Cover	FC200	SCS13A	SCS14A
103b	軸承裡襯 Bearing block	SS400	SS400	SS400	407	軸封固定環 Seal seat	BC6	SUS304	SUS316
105	填料函殼 Stuffing Box	FC200	SCS13A	SCS14A	501	聯軸器 Coupling	FC200	FC200	FC200
105b	軸套 Sleeve	BC6	BC6/Teflon/ Carbon	BC6/Teflon/ Carbon	502	聯軸器 Coupling	FC200	FC200	FC200
110	逆止盤 Ratchet wheel	FC200	FC200	FC200	503	聯軸器橡膠 Coupling bushing	Rubber	Rubber	Rubber
110a	逆止桿 Ratchet Bar	SUS410	SUS410	SUS410	503a	調整片 Shaft Space	SS400	SS400	SS400
111	中間托架 Shafting bracket	FC200	SCS13A	SCS14A	504	聯軸器螺栓 Bolt and Nut	SS400	SS400	SS400
111a	水中軸承 Bearing	BC6/BC+NBR	BC6/Teflon/ Carbon	BC6/Teflon/ Carbon	505	分割環 Lantern ring	SS400	SS400	SS400
112	導輪 Guide Vane	FC200	SCS13A	SCS14A	506	聯軸器鍵 Coupling Pin	SS400	SS400	SS400
112a	水中軸承 Bearing	BC6/BC+NBR	BC6/Teflon/ Carbon	BC6/Teflon/ Carbon	601	止推軸承 Thrust Bearing			
201	葉輪 Impeller	BC6	SCS13A	SCS14A	602	球軸承 Ball Bearing			
201a	葉輪鍵 Impeller key	SUS304	SUS304	SUS316	702	擋水環 Water slinger	Rubber	Rubber	Rubber
202	固定螺母 Imp. Bolt	BC6	SUS304	SUS316	703	封油管 Oil Guard Pipe	SS400	SS400	SS400
203	泵軸 Pump Shaft	SUS410	SUS304	SUS316	704	油封 Oil Seal	Rubber	Rubber	Rubber
203a	頂軸 Head Shaft	SUS410	SUS304	SUS316	704a	油封押蓋 Oil Seal cover	SUS304	SUS304	SUS316
203b	柱軸 Line Shaft	SUS410	SUS304	SUS316	902	濾網 Strainer	SUS304	SUS304	SUS316
203c	軸接頭 Shaft Coupling	SS400	SS400	SS400	903	馬達座 Motor Pedestal	FC200	FC200	FC200
204	軸套筒 Sleeve	SUS410	SUS304	SUS316	904	柱管 Column pipe	SGP	SUS304	SUS316
206	磨損環 attrition ring	BC6	SCS13A	SCS14A	909	入口殼—防沙帽	BC6	SCS13	SCS14
301	調整螺母 Shaft adjusting	SS400	SS400	SS400	909a	導輪—防沙帽			
					909b	中間托架—防沙帽 Anti-Sand protector			
305	墊圈 & 分割環 Gasket & Division ring	BC6	SUS304	SUS316	910	塞頭 Stopper	SS400	SUS304	SUS316



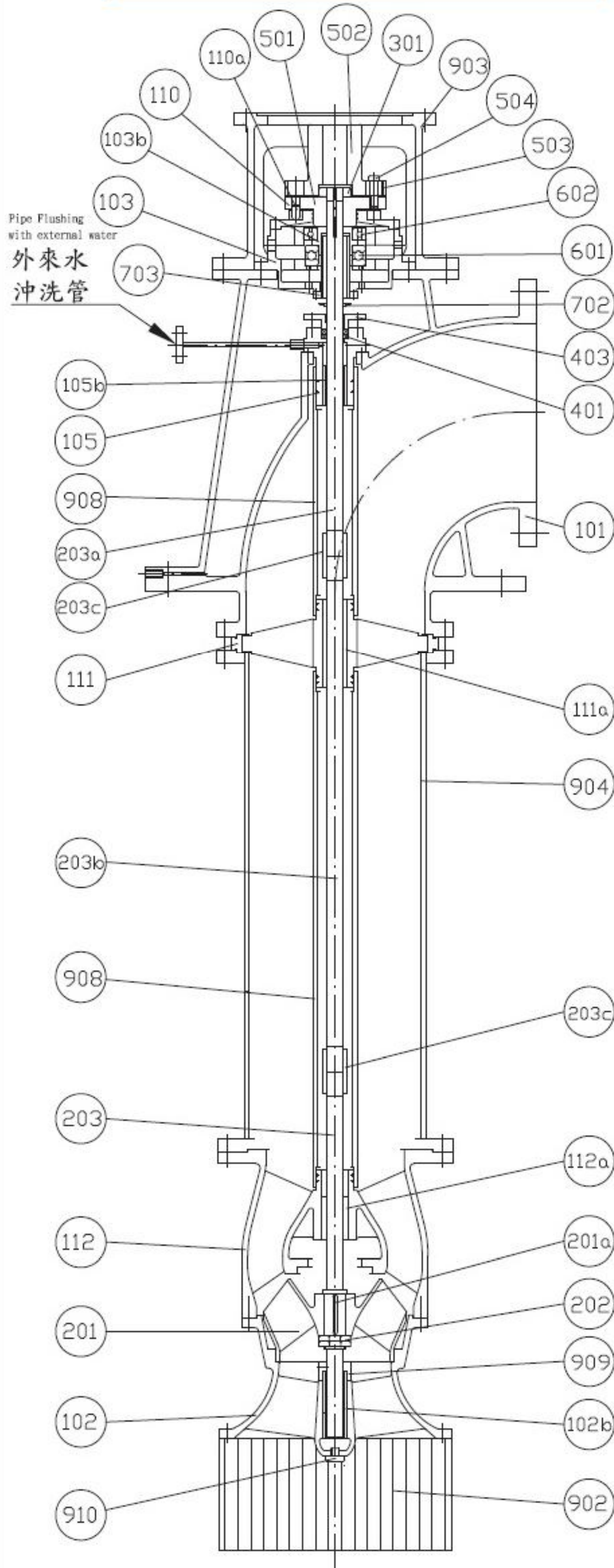
\*\*大流量用泵浦一口徑：□ 250mm以上

\*\*Large flow pump--dia. : over 250mm

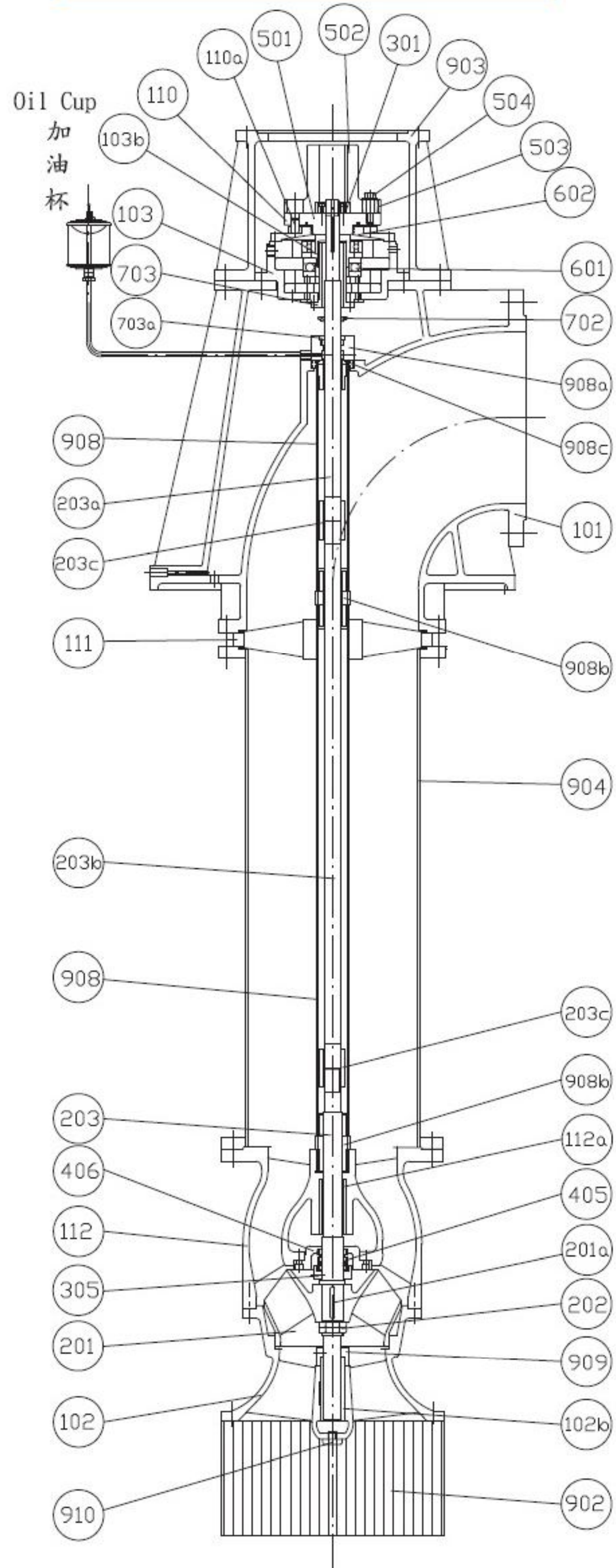
\*\*填料型及軸封式可依實際需求或客戶要求修改-油浴式或外來水潤滑式

\*\*Gland Packing Meechanical Seal can be modified according to actual requirement or customer demand-oil bath or external water lubrication type.

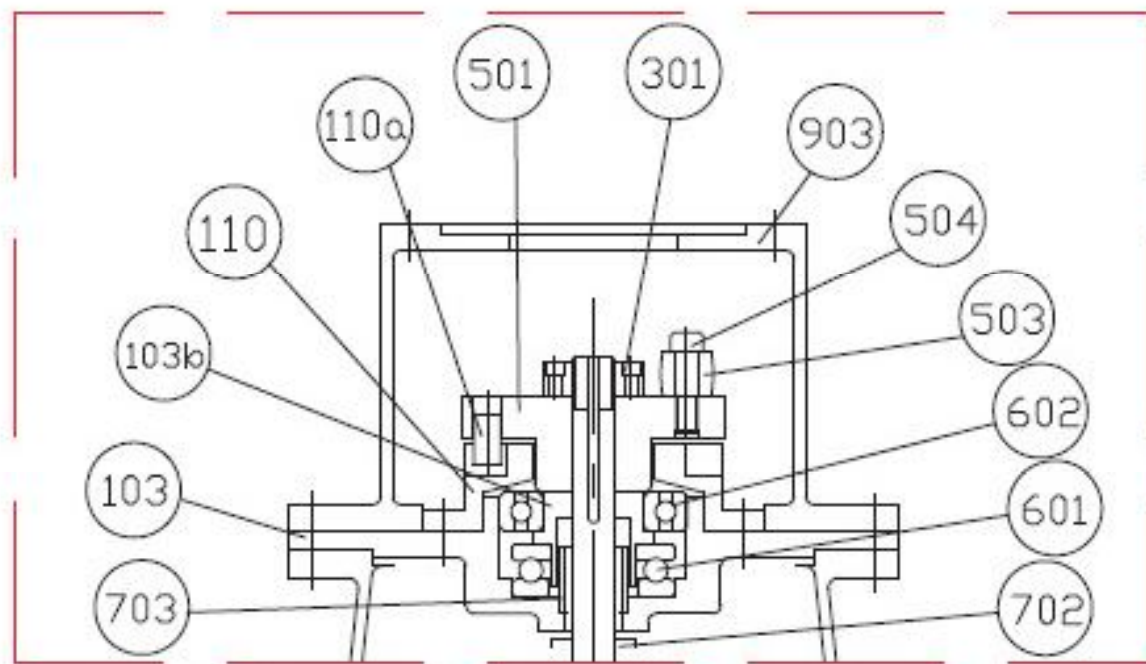
**\*\*填 料 式 Gland Packing\*\***



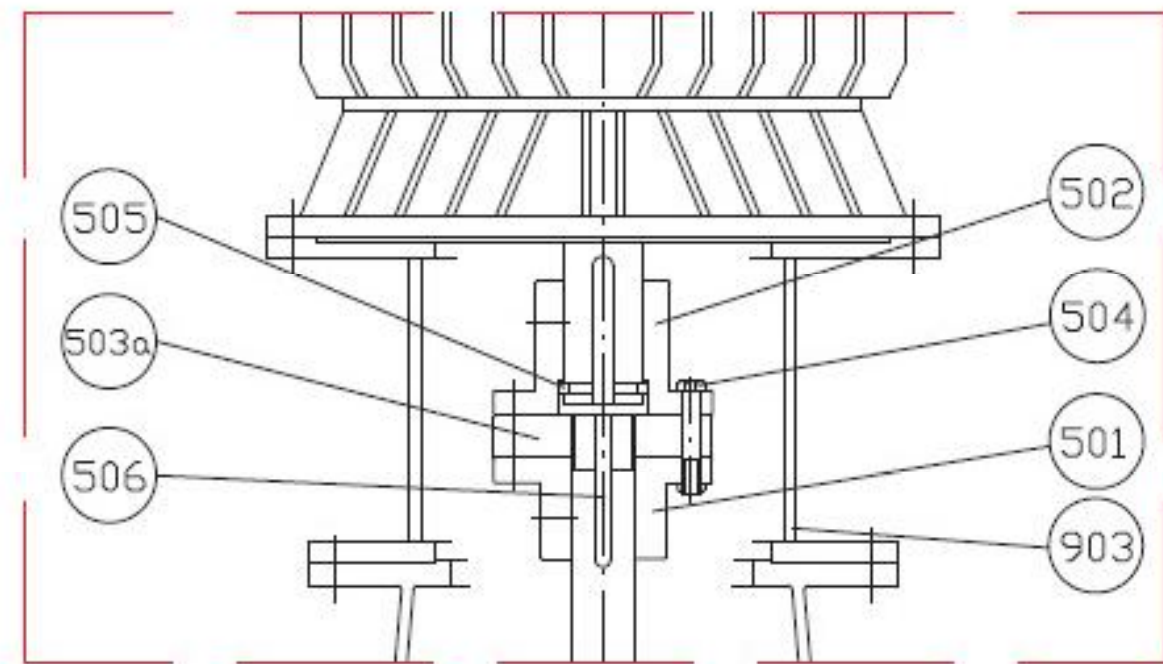
**\*\*軸 封 式 Mechanical Seal\*\***







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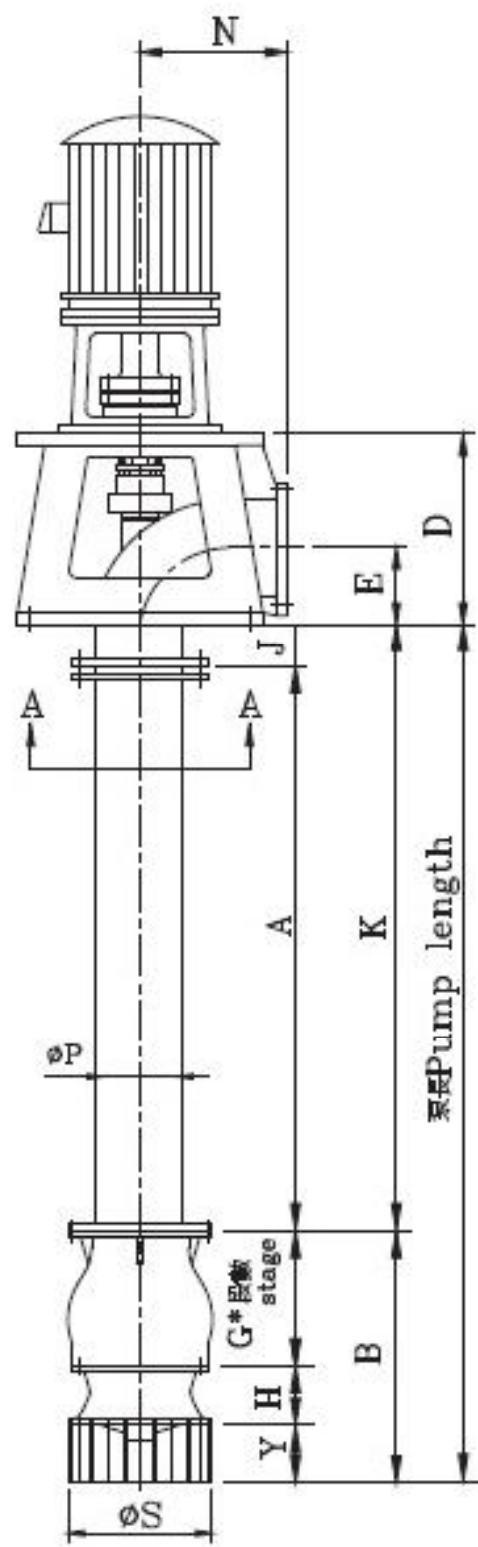
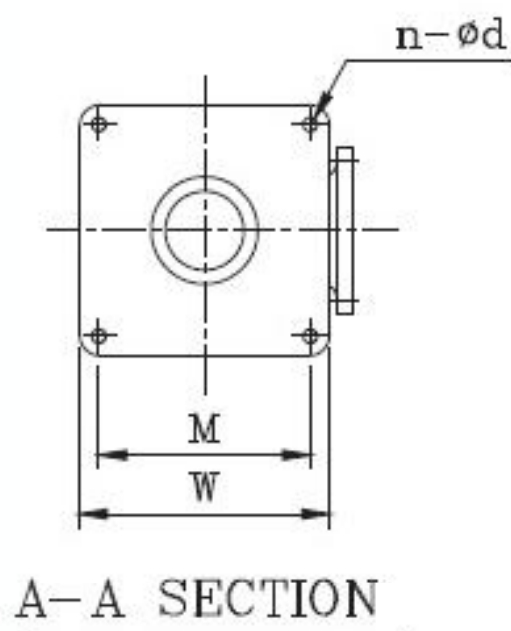
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102b	水中軸承 Bearing	BC6	BC6	BC6	501	聯軸器 Coupling	FC200	FC200	FC200
103	軸承箱 Bearing housing	FC200	FC200	FC200	502	聯軸器 Coupling	FC200	FC200	FC200
103b	軸承裡襯 Bearing block	SS400	SS400	SS400	503	聯軸器橡膠 Coupling bushing	Rubber	Rubber	Rubber
105	填料函殼 Stuffing Box	FC200	SCS13A	SCS14A	503a	調整片 Shaft Space	SS400	SS400	SS400
105b	軸套 Sleeve	BC6	BC6	BC6	504	聯軸器螺絲 Bolt and Nut	SS400	SS400	SS400
110	逆止盤 Ratchet wheel	FC200	FC200	FC200	505	分割環 Lantern ring	SS400	SS400	SS400
110a	逆止桿 Ratchet Bar	SUS410	SUS410	SUS410	506	聯軸器鍵 Coupling Pin	SS400	SS400	SS400
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203a	頂軸 Head Shaft	SUS410	SUS304	SUS316	908	內襯管 Protective tube	SUS304	SUS304	SUS316
203b	柱軸 Line Shaft	SUS410	SUS304	SUS316	908a	內襯管押蓋 Protective tube cover	BC6	SUS304	SUS316
203c	軸接頭 Shaft Coupling	SS400	SS400	SS400	908b	內襯管接頭 Protective tube coupling	BC6	SUS304	SUS316
301	調整螺母 Shaft adjusting	SS400	SS400	SS400	908c	內襯管墊圈 Protective tube Gasket	BC6	SUS304	SUS316
305	墊圈 Gasket	BC6	SUS304	SUS316	909	防沙帽 Anti-Sand protector	BC6	SCS13A	SCS14A
401	填料蓋 Gland	FC200	SCS13A	SCS14A	910	塞頭 Stopper	SS400	SUS304	SUS316
403	填料 Packing	V#133	V#7133	V#7133					



豎軸泵浦外型尺寸圖(大口徑)

VERTICAL CENTRIFUGAL PUMP DIMENSIONS(Large Flow)

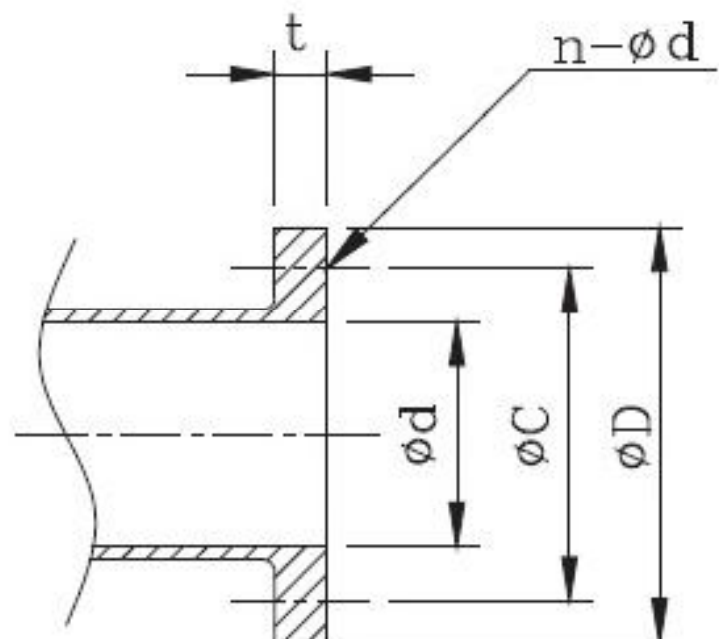
Unit:mm



尺寸Dim. 型式Model	口径 Caliber	ØP	D	E	J	N	W	M	n-Ød	Y	ØS	H	G	備註 Remark
VT-250	250	250	570	250	100	350	600	500	4-23	250	400	210	406	
	300	300	620	300	100	400	700	600	4-25	250	400	210	406	
VT-251	250	250	570	250	100	350	600	500	4-23	250	410	240	360	
	300	300	620	300	100	400	700	600	4-25	250	410	240	360	
VT-252 (VT-252A)	250	250	570	250	100	350	600	500	4-23	250	440	240	390	
	300	300	620	300	100	400	700	600	4-25	250	440	240	390	
	350	350	670	350	100	400	700	600	4-25	250	440	240	390	
	400	400	720	400	100	450	850	750	4-25	250	440	240	390	
VT-300	300	300	620	300	100	400	700	600	4-25	250	460	242	380	
	350	350	670	350	100	400	700	600	4-25	250	460	242	380	
	400	400	720	400	100	450	850	750	4-25	250	460	242	380	
VT-301	300	300	620	300	100	400	700	600	4-25	250	450	250	345	
	350	350	670	350	100	400	700	600	4-25	250	450	250	345	
	400	400	720	400	100	450	850	750	4-25	250	450	250	345	
VT-302	350	350	670	350	100	400	700	600	4-25	250	490	245	390	
	400	400	720	400	100	450	850	750	4-25	250	490	245	390	
	500	500	857	503	108	515	950	850	4-28	250	490	245	390	
VT-350	350	350	670	350	100	400	700	600	4-25	250	480	246	370	
	400	400	720	400	100	450	850	750	4-25	250	480	246	370	
VT-400	350	350	670	350	100	400	700	600	4-25	250	500	270	370	
	400	400	720	400	100	450	850	750	4-25	250	500	270	370	
VT-401	400	400	720	400	100	450	850	750	4-25	250	620	260	590	
	500	500	857	503	108	515	950	850	4-28	250	620	260	590	
VT-402	350	350	670	350	100	400	700	600	4-25	250	620	305	505	
	400	400	720	400	100	450	850	750	4-25	250	620	305	505	
VT-451	400	400	720	400	100	450	850	750	4-25	300	680	400	550	
	500	500	857	503	108	515	950	850	4-28	300	680	400	550	
	600	600	1,100	600	0	600	1,000	920	4-30	300	680	400	550	
VT-452	400	400	720	400	100	450	850	750	4-25	250	580	303	400	
	500	500	857	503	108	515	950	850	4-28	250	580	303	400	
VT-553	500	500	857	503	108	515	950	850	4-28	300	850	350	680	
	600	600	1,100	600	0	600	1,000	920	4-30	300	850	350	680	
VT-650	600	600	1,100	600	0	600	1,000	920	4-30	300	750	392	370	
	650	650	1,080	650	0	650	1,000	920	4-30	300	750	392	370	
VT-700	650	650	1,080	650	0	650	1,000	920	4-30	300	810	464	680	
	700	700	1,246	696	0	700	1,000	920	4-30	300	810	464	680	
VT-802	700	700	1,246	696	0	700	1,000	920	4-30	300	810	472	760	
	750	750	1,300	702	0	850	Ø1475	Ø1390	24-33	300	810	472	760	

法蘭尺寸 FLANGE DIMENSIONS

Unit:mm

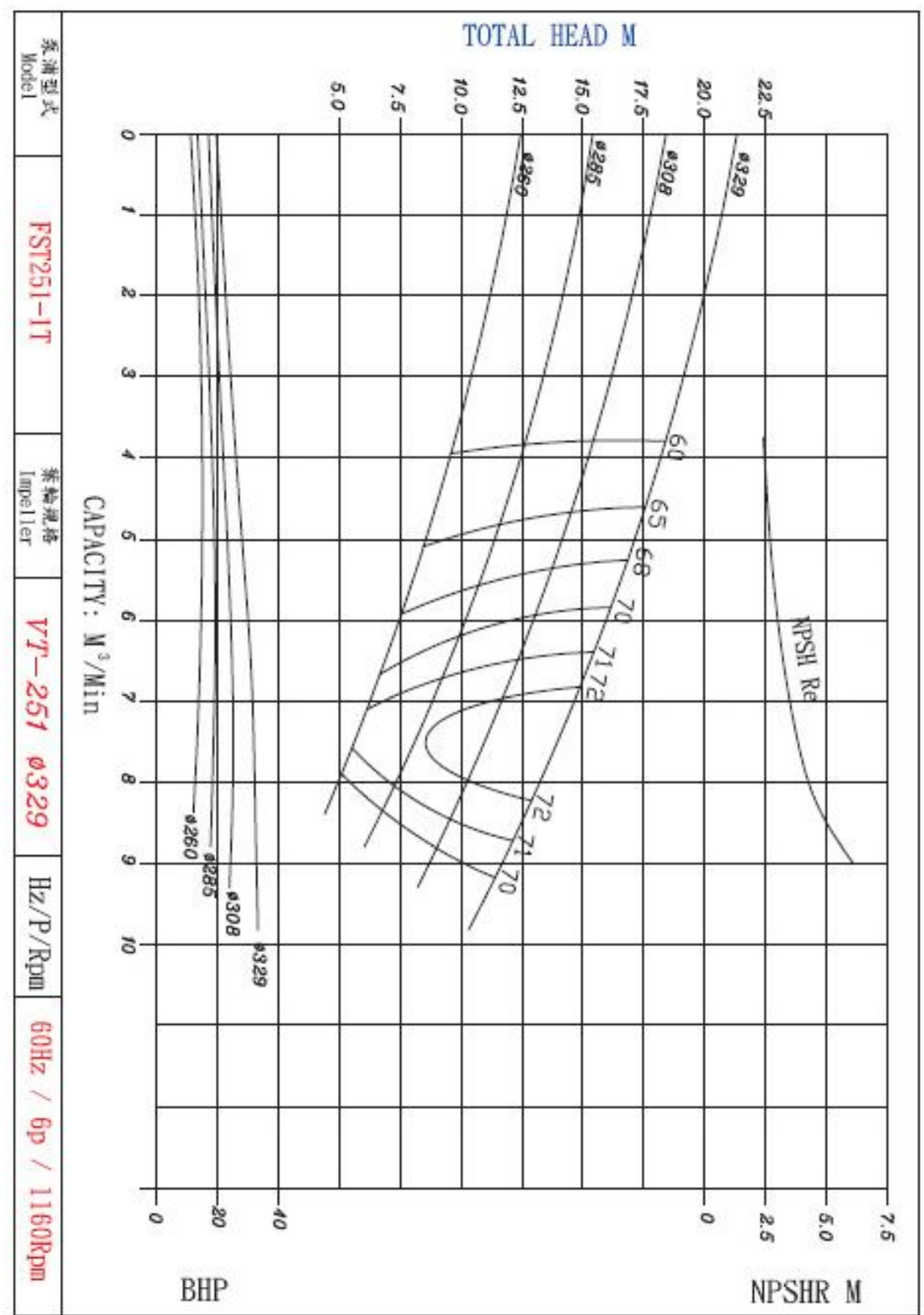
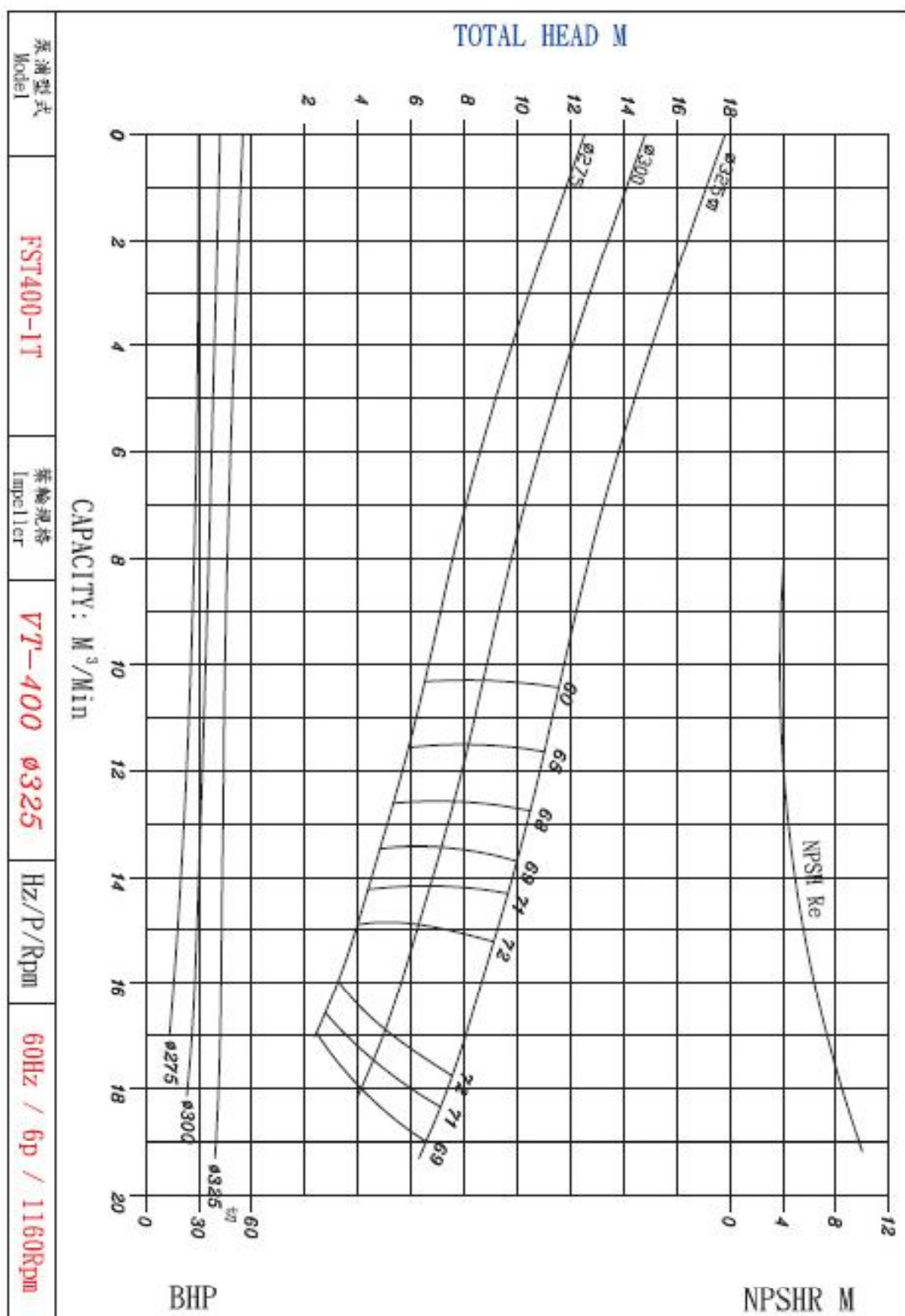
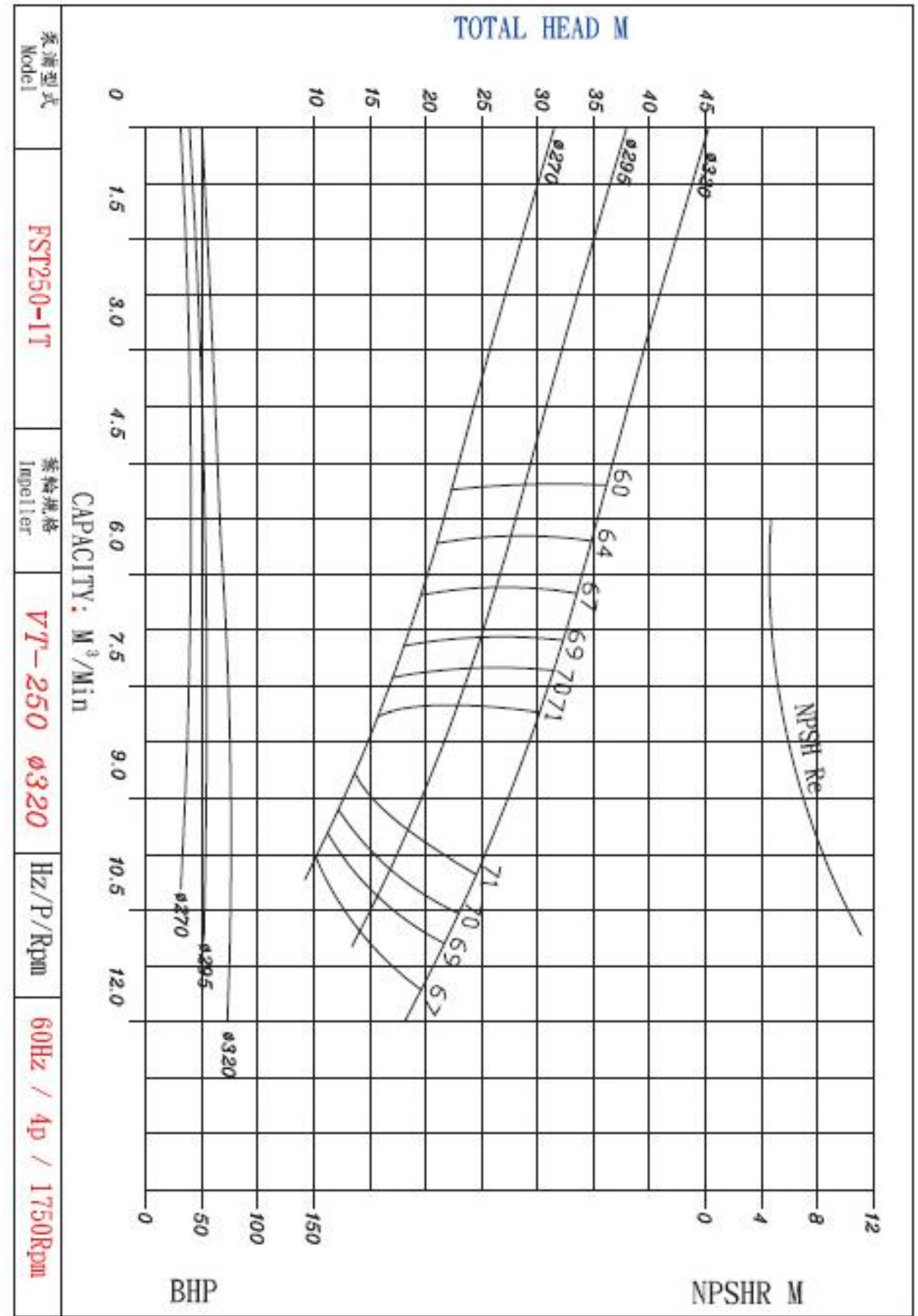
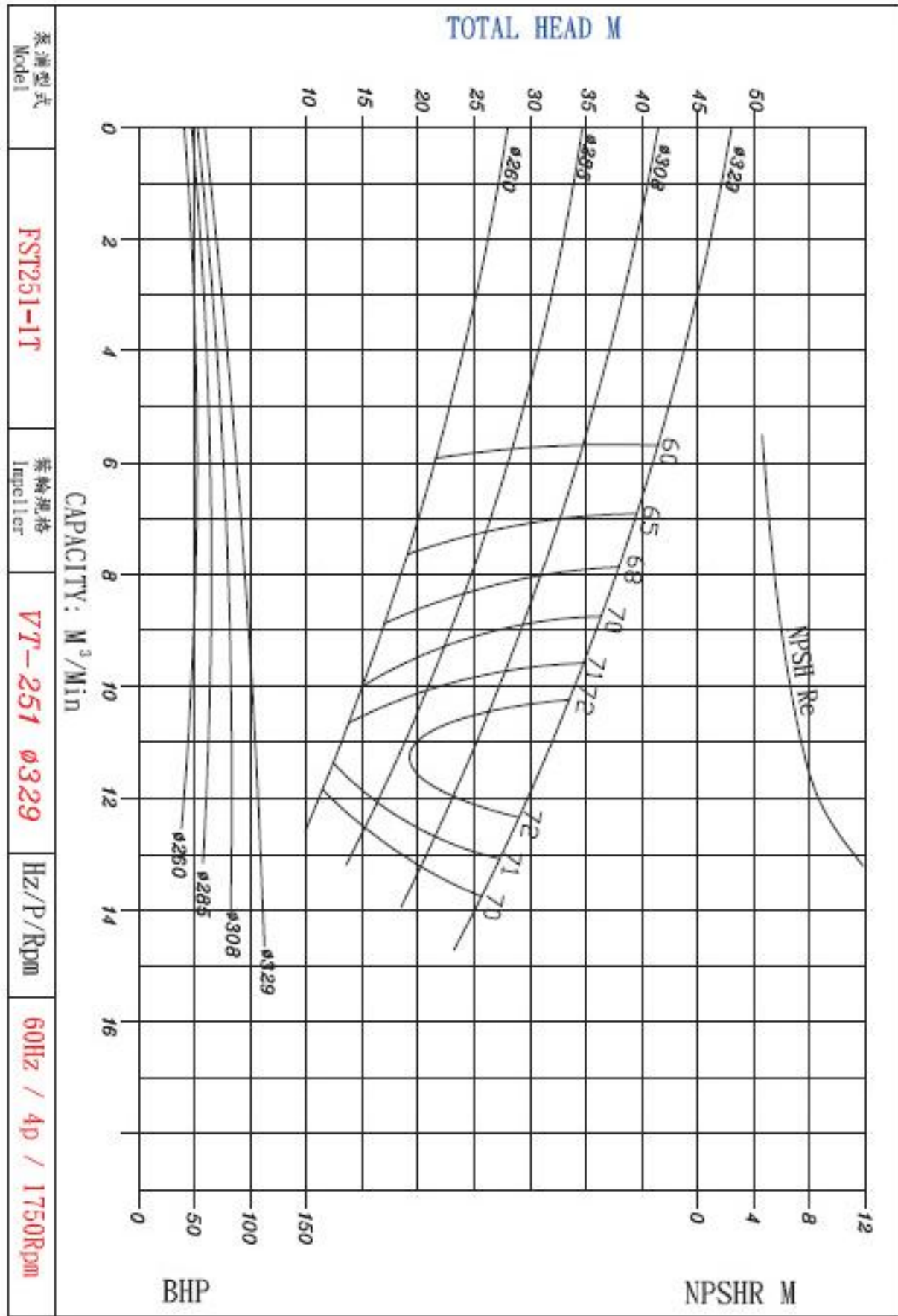


口径Caliber	日規Japaness Spec: JIS-10K FF				美規US Spec: ANSI#150FF			
ød	ØD	ØC	t	n-ød	ØD	ØC	t	n-ød
Ø250	400	355	24	12-25	406	361.9	30	12-25
Ø300	445	400	24	16-25	483	431.8	32	12-25
Ø350	490	445	26	16-25	533	476.2	35	12-29
Ø400	560	510	28	16-27	597	539.7	37	16-29
Ø500	675	620	30	20-27	698	635.0	43	20-32
Ø600	795	730	32	24-33	813	749.3	48	20-35
Ø650	845	780	34	24-33				
Ø700	905	840	34	24-33				
Ø750	970	855	36	24-33				



# 性能曲線圖 60Hz

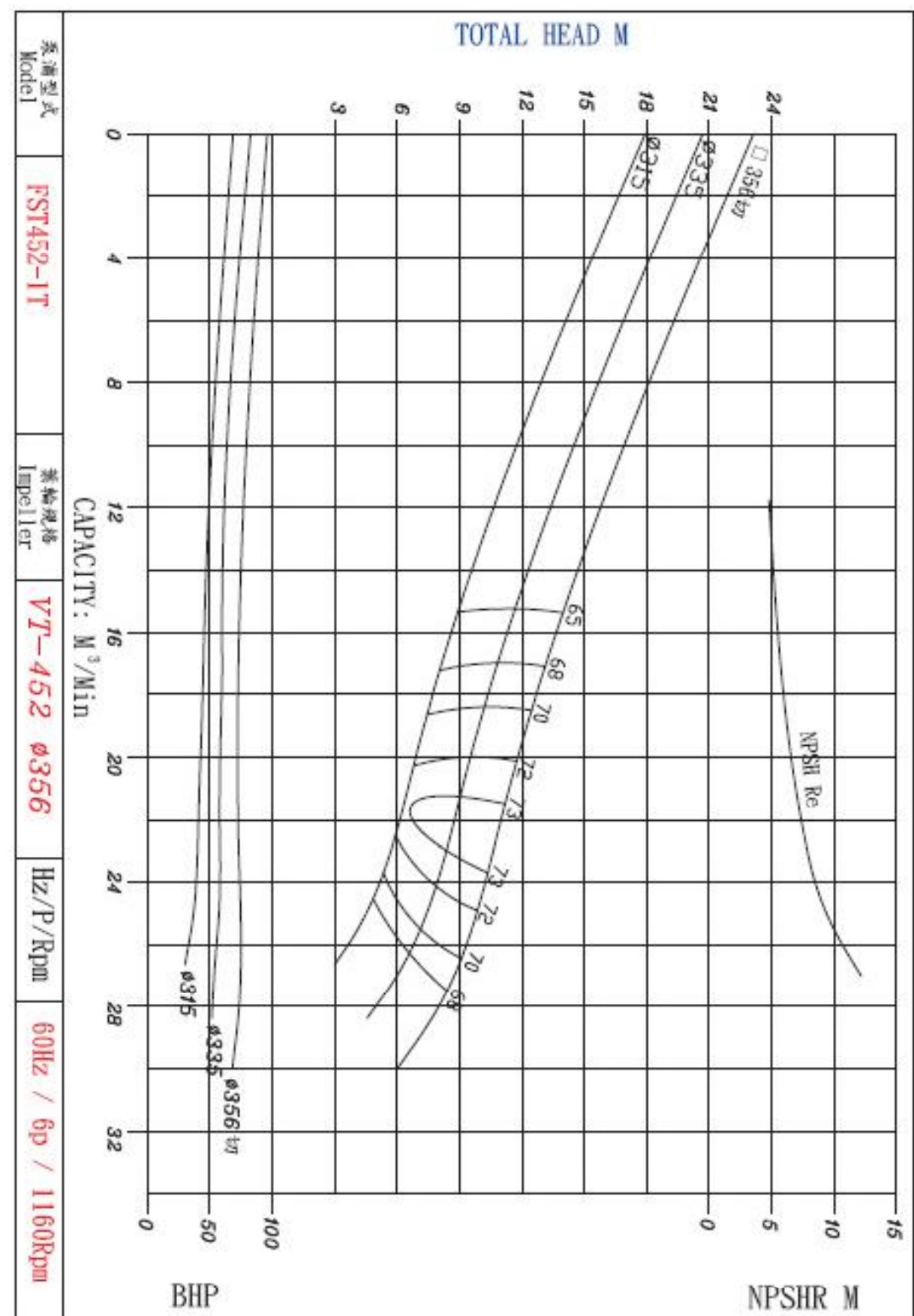
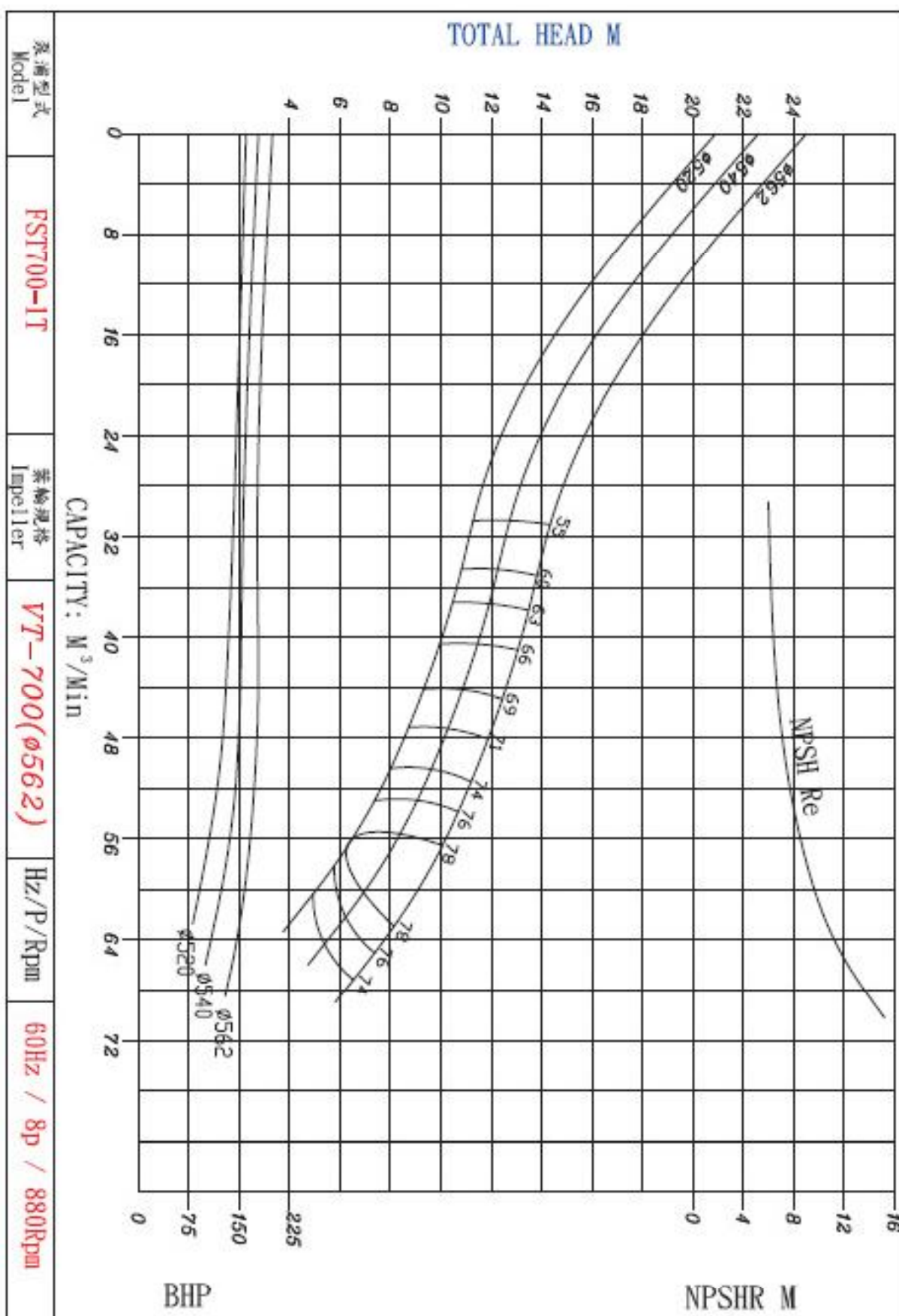
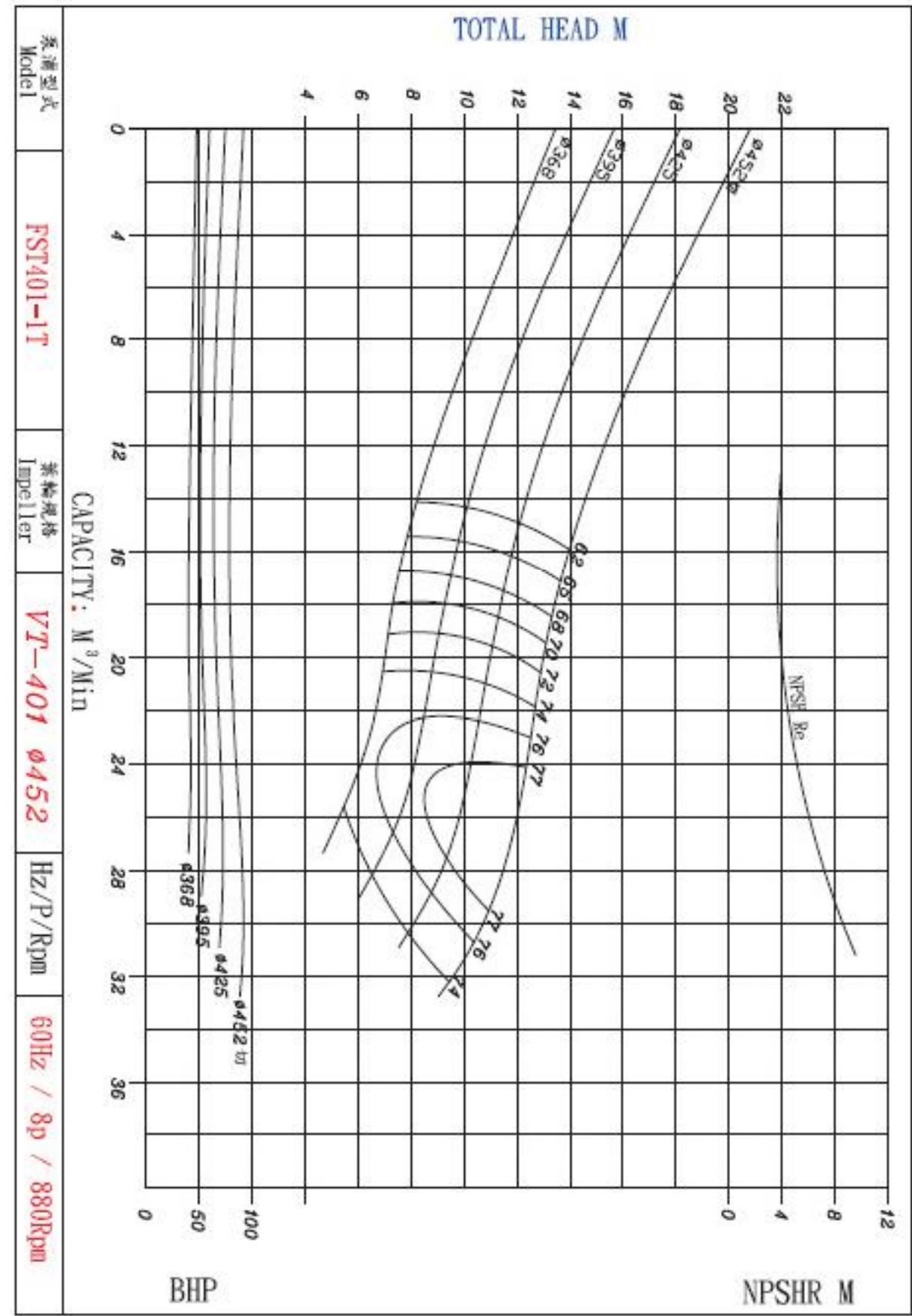
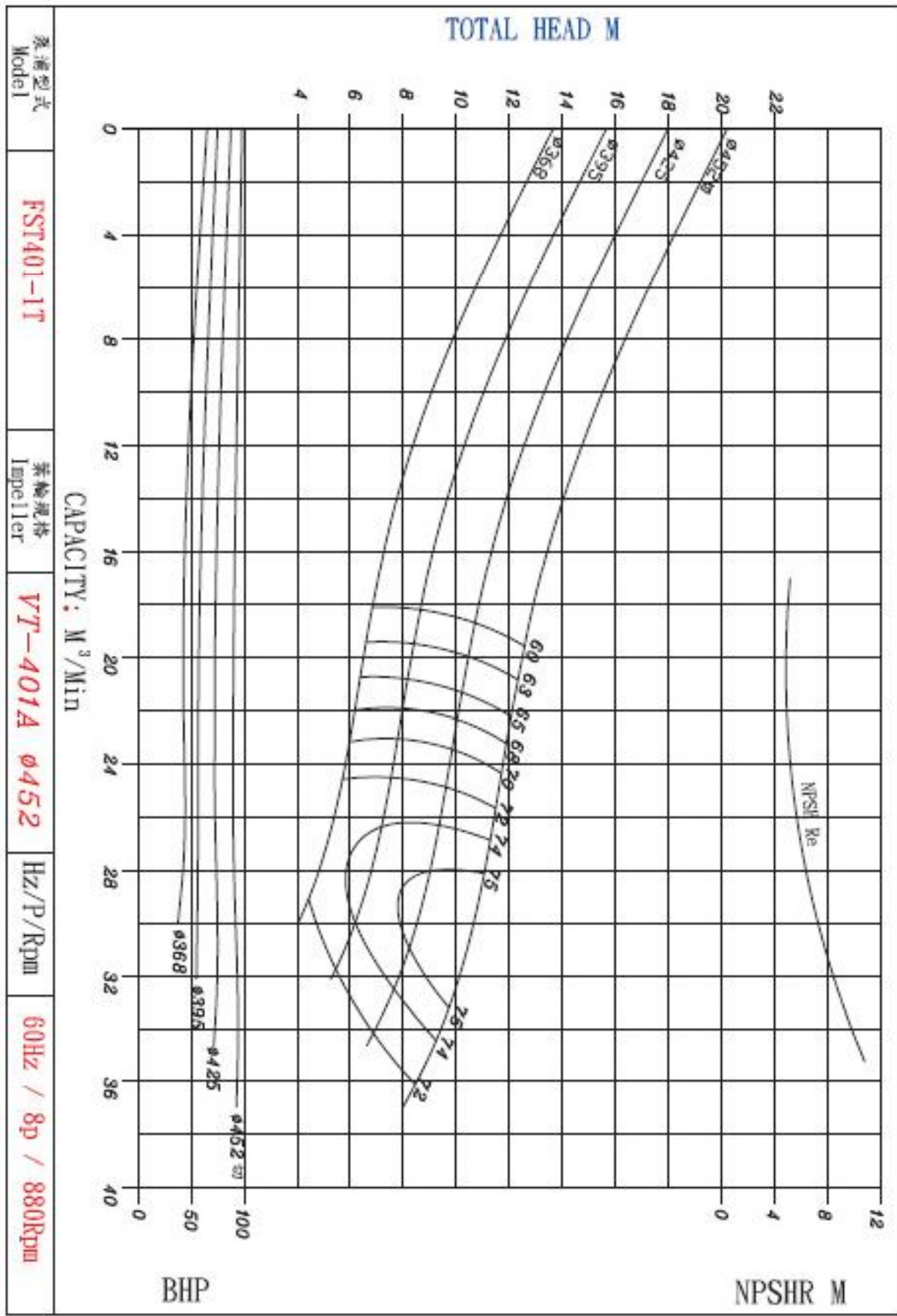
# Performance Curve 60Hz





# 性能曲線圖 60HZ

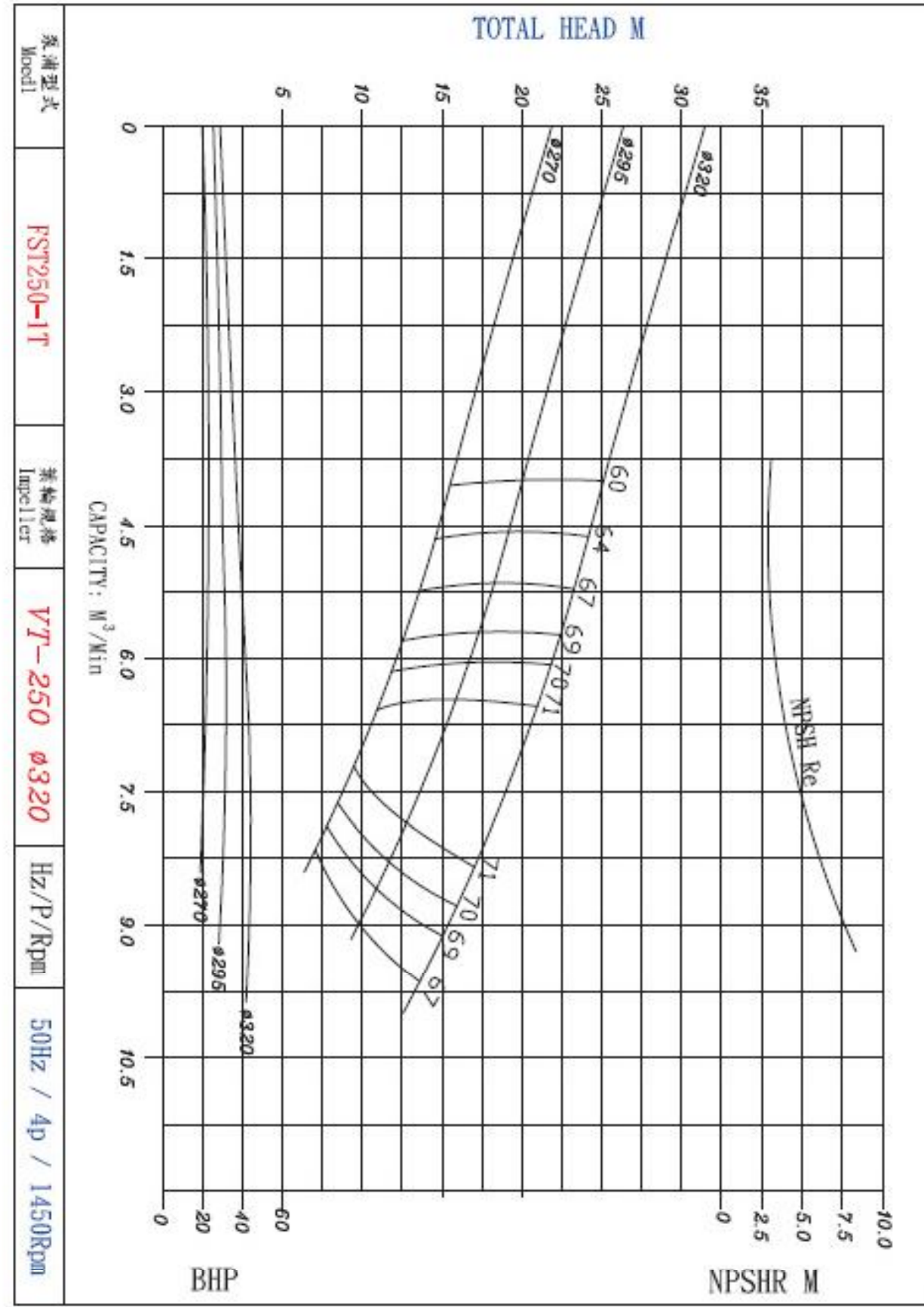
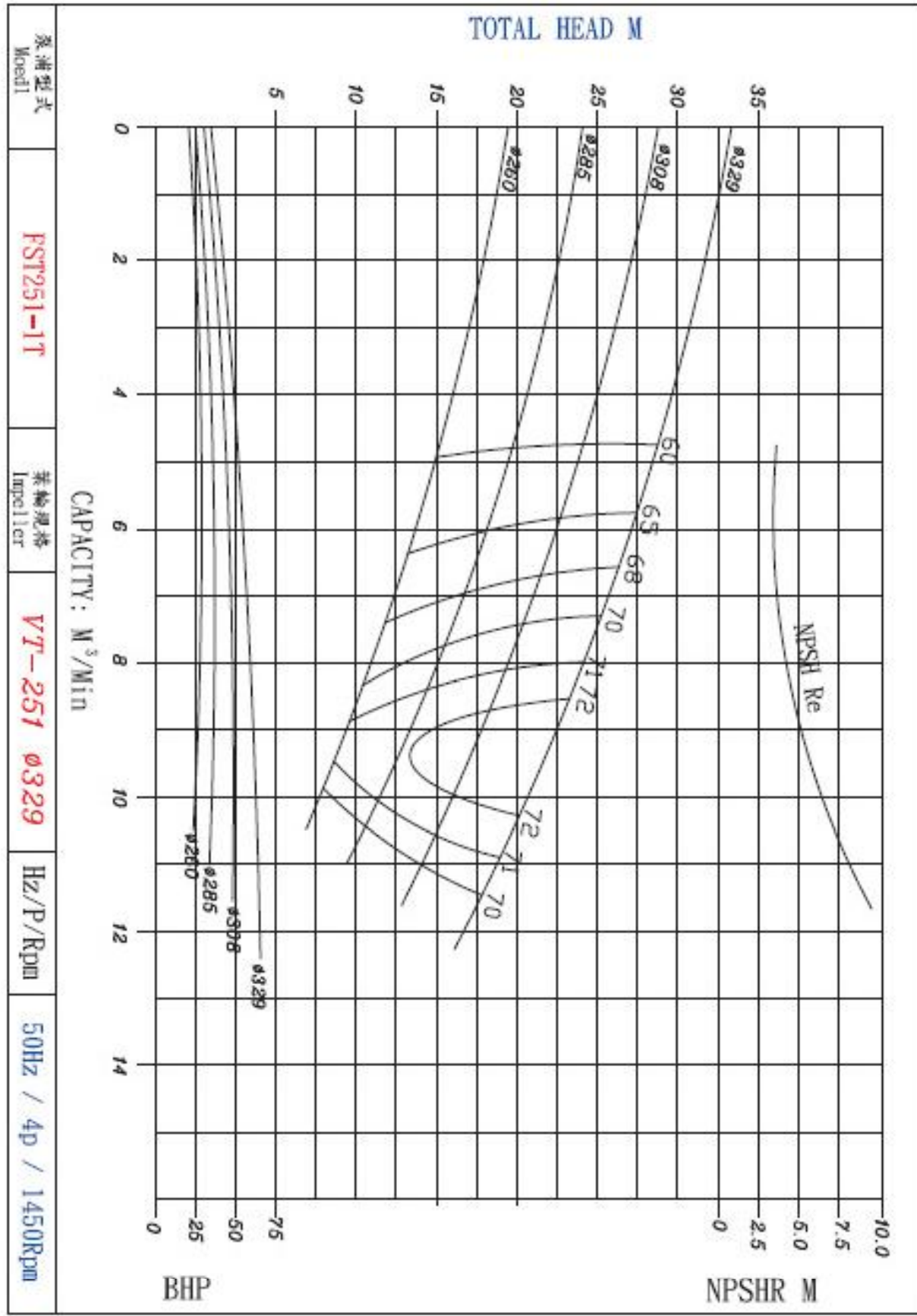
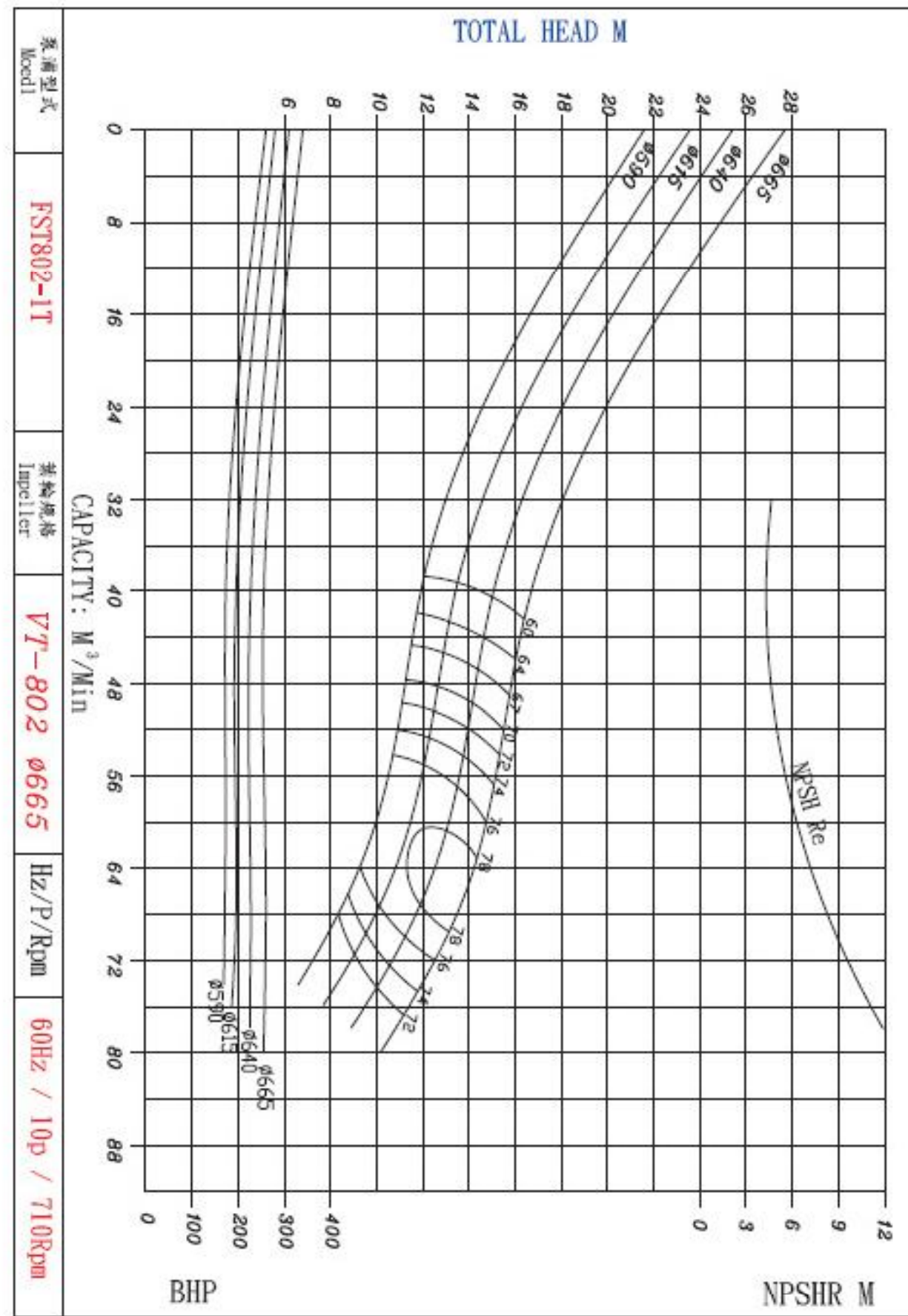
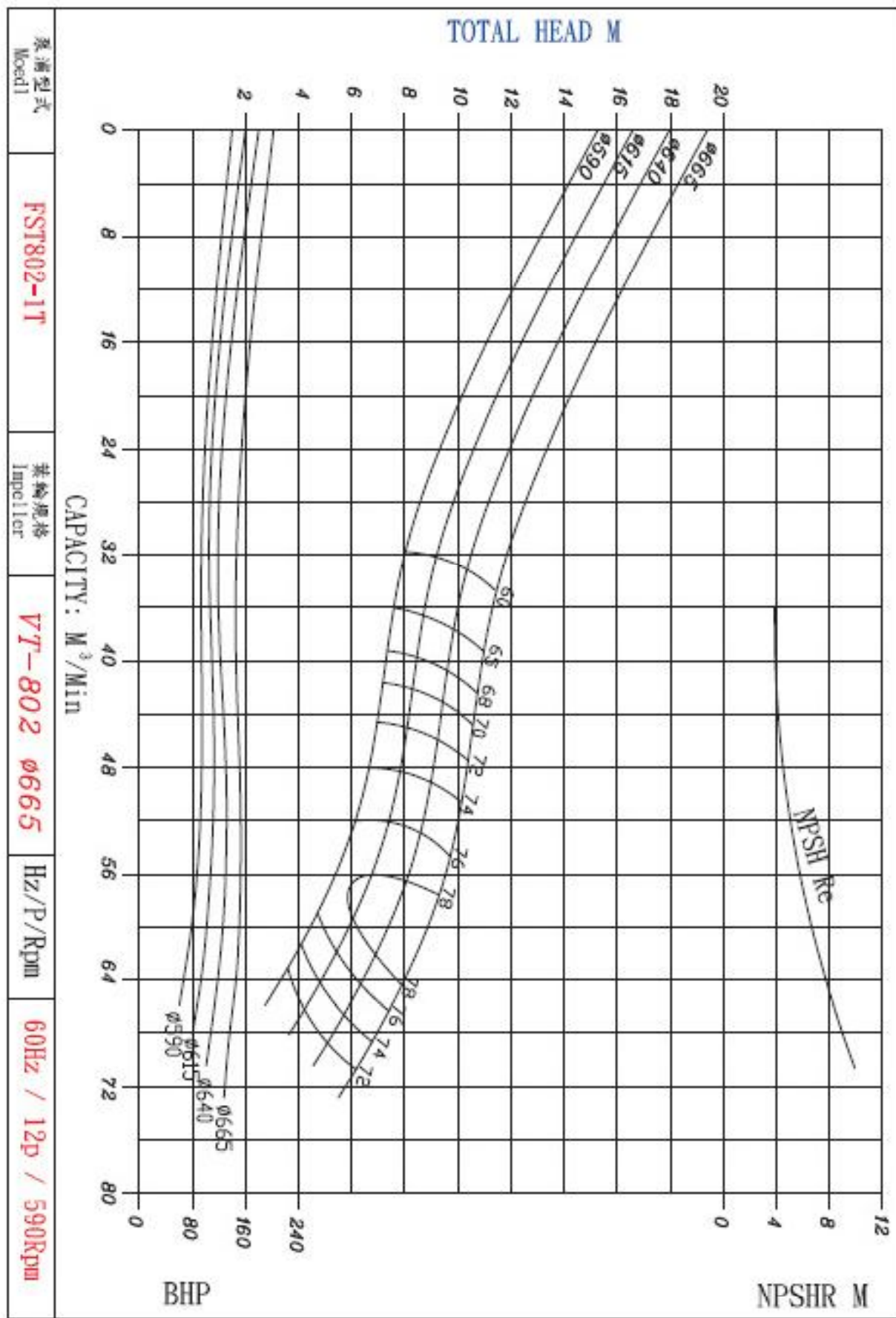
# Performance Curve 60HZ





# 性能曲線圖 60Hz/50Hz

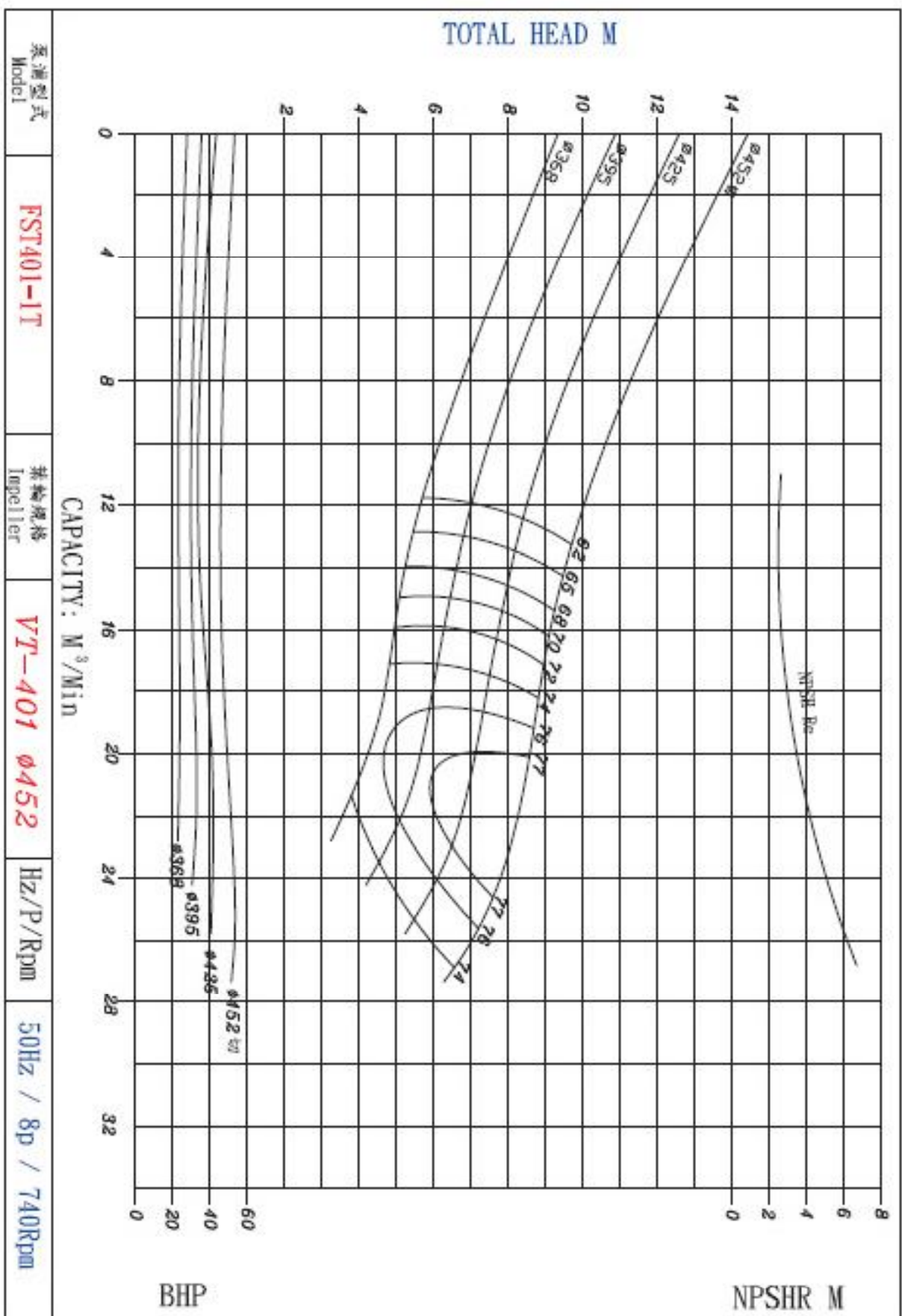
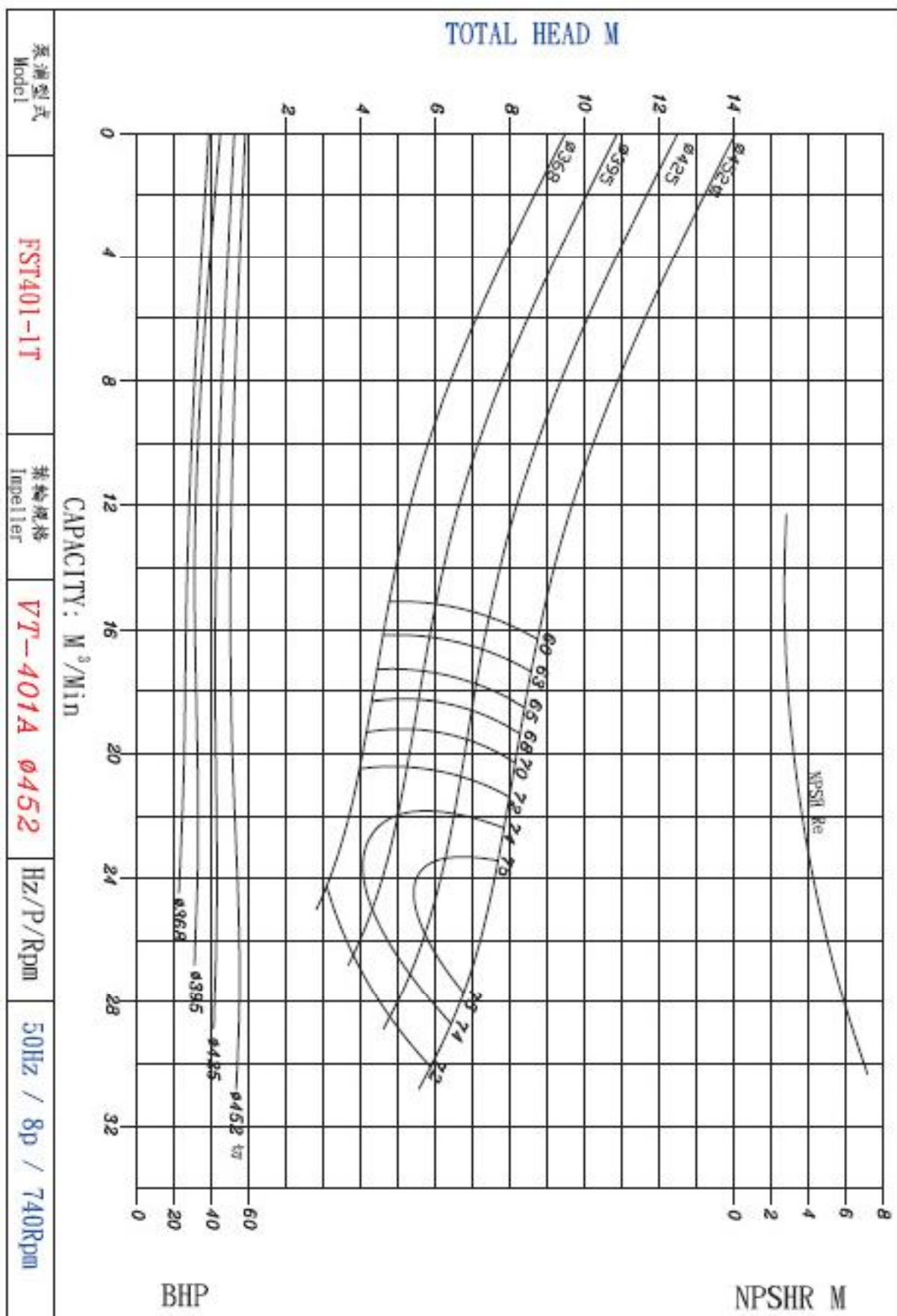
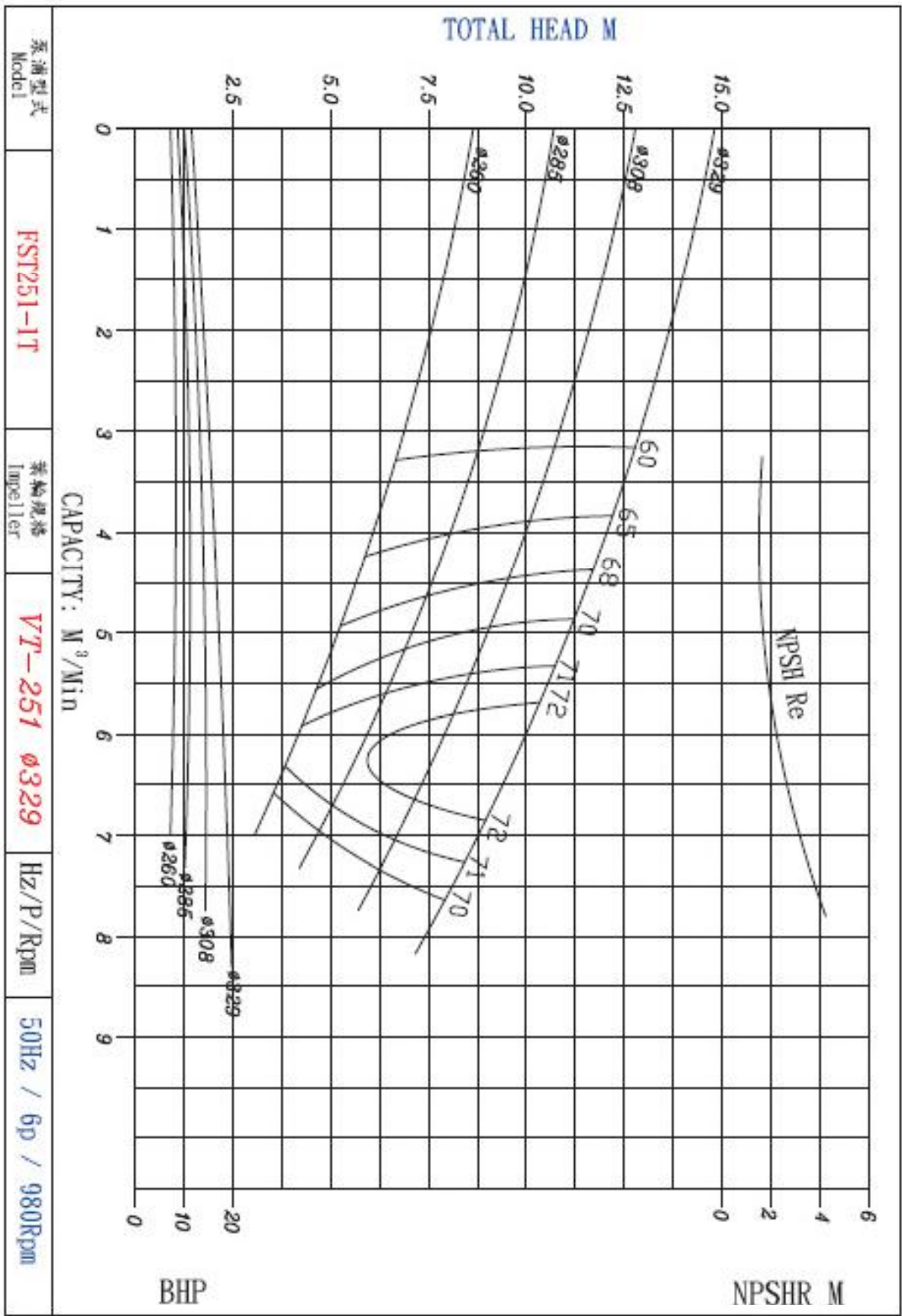
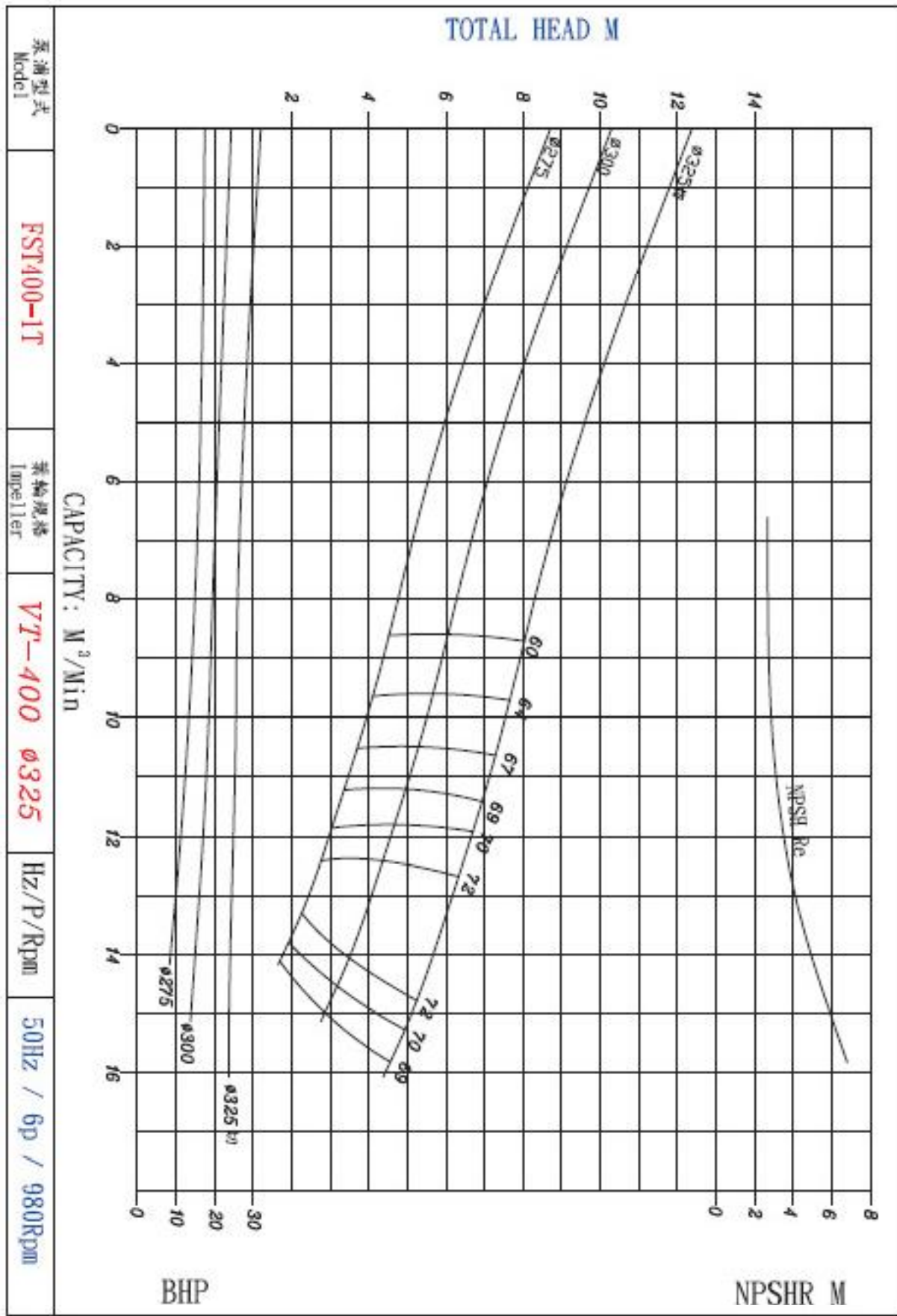
# Performance Curve 60Hz/50Hz





# 性能曲線圖50HZ

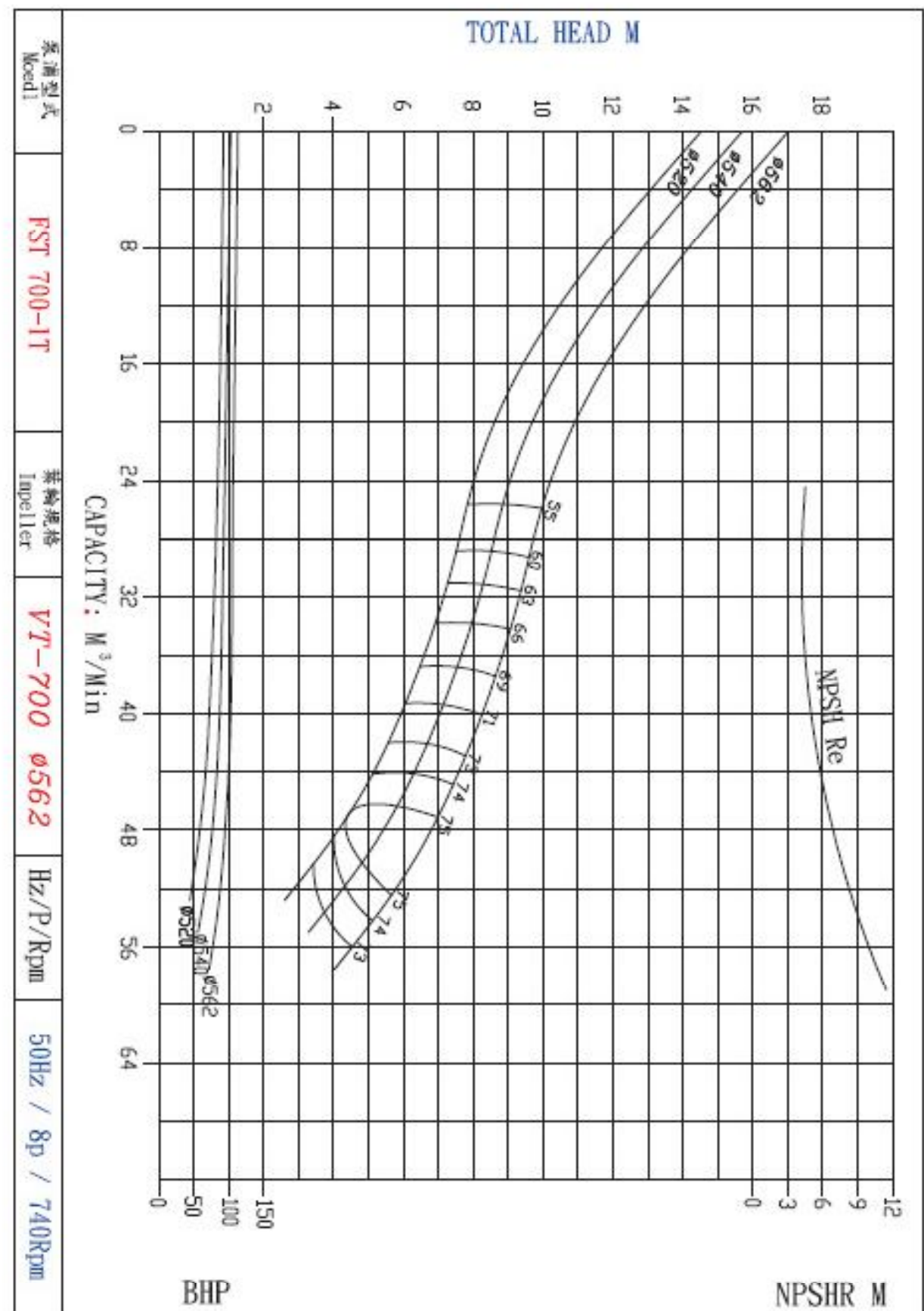
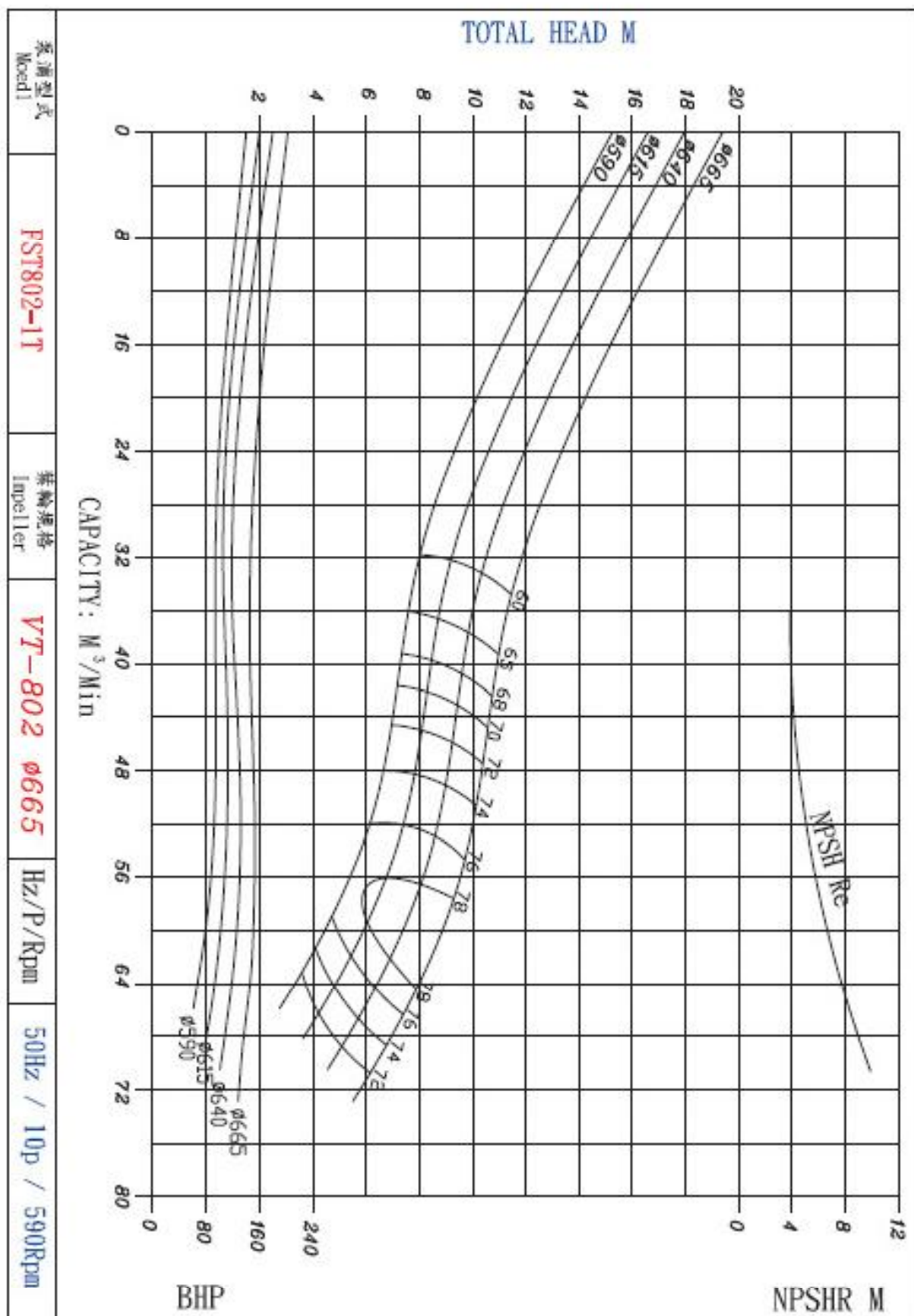
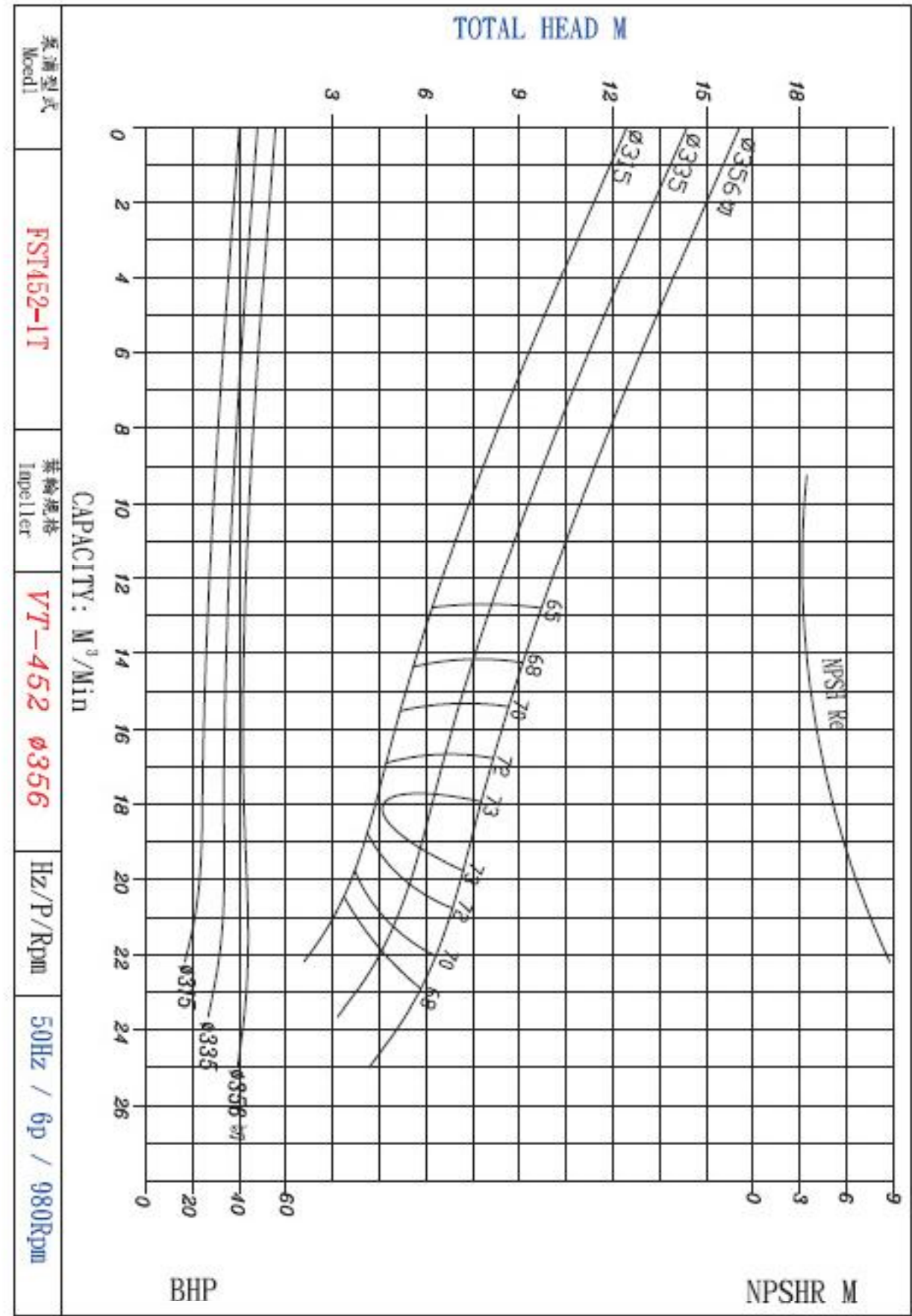
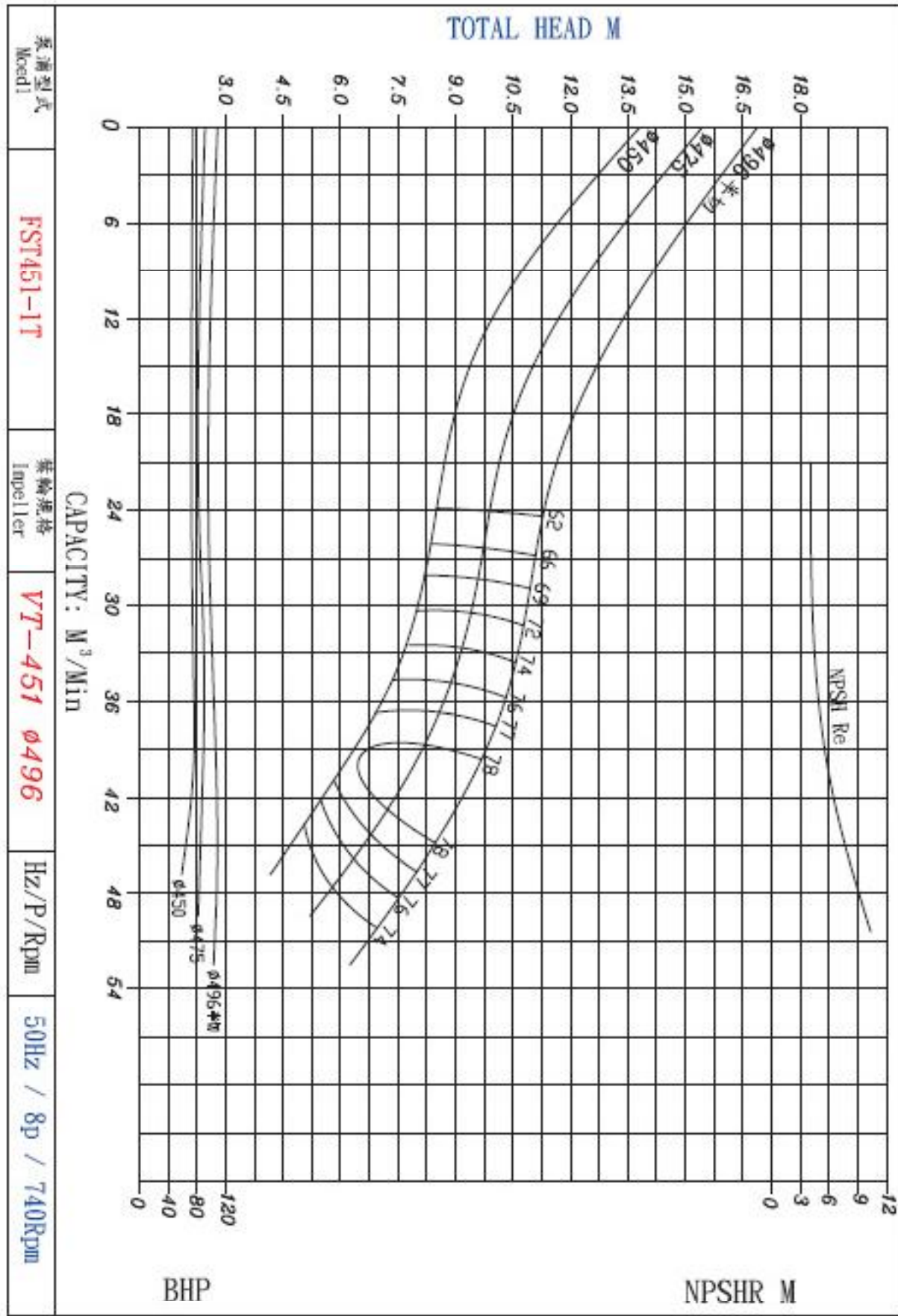
# Performance Curve 50HZ





# 性能曲線圖 50Hz

# Performance Curve 50Hz













## 如蒙洽詢請指示下列各項

## Request for information

- 1.液體 : \_\_\_\_\_
- 2.出水量 : \_\_\_\_\_ M<sup>3</sup>/Min.(US.GPM)
- 3.總揚程 : \_\_\_\_\_ M(ft)
- 4.液體溫度 : \_\_\_\_\_ °C(°F)
- 5.液體黏度 : \_\_\_\_\_
- 6.比重 : \_\_\_\_\_
- 7.酸鹼度 : \_\_\_\_\_
- 8.運轉溫度下之蒸汽壓力 :  
\_\_\_\_\_ kg/cm<sup>2</sup>(PSIA)
- 9.可用之淨有效吸入揚程 : \_\_\_\_\_ M(ft)
- 10.泵浦回轉數 : \_\_\_\_\_ rpm
- 11.額定馬力 : \_\_\_\_\_ KW(HP) \_\_\_\_\_ Pole  
\_\_\_\_\_ Phase, \_\_\_\_\_ Hz, \_\_\_\_\_ volts

When making an enquiry, please indicate the details of the following information:

- 1.Liquid : \_\_\_\_\_
- 2.Capacity : \_\_\_\_\_ M<sup>3</sup>/Min. (US.GPM)
- 3.Total head : \_\_\_\_\_ M(ft)
- 4.Temperature of Liquid: \_\_\_\_\_ °C (°F)
- 5.Viscosity of Liquid: \_\_\_\_\_
- 6.Specific Gravity: \_\_\_\_\_
- 7.PH : \_\_\_\_\_
- 8.Vapor pressure at operating temperature :  
\_\_\_\_\_ kg/cm<sup>2</sup>(PSIA)
- 9.NPSH available : \_\_\_\_\_ M(ft)
- 10.Pump speed : \_\_\_\_\_ rpm
- 11.Rated Power : \_\_\_\_\_ KW(HP) \_\_\_\_\_ Pole  
\_\_\_\_\_ Phase, \_\_\_\_\_ Hz, \_\_\_\_\_ volts

## 主要產品

## Main Product Line

一般給水排水泵浦  
空調冷凍用泵浦  
鍋爐給水高壓泵浦  
含固體雜質液輸送泵浦  
石化液製程輸送泵浦  
酸鹼液輸送泵浦  
深水井抽水泵浦

General water supply/drainage pump  
Air-conditioning freezing pump  
Boiler water supply high-pressure pump  
Solid impurities contained liquid conveying pump  
Petrochemical liquid process conveying pump  
Acid/alkaline liquid conveying pump  
Deep well suction pump

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8/1 SOI 3-10 PETCHKASEM 77 PETCHKASEM ROAD  
NONGKANGPLU NONGKAEM BANGKOK 10160  
TEL : (662) 809-8915-8 / FAX : (662) 809-8933  
<http://www.thaipinnacle.com>  
E-mail : [sale@thaipinnacle.com](mailto:sale@thaipinnacle.com)