



宏旭

HORNG SHIUH

豎軸式

軸流泵浦

VERTICAL AXIAL FLOW

PUMP



FST

特點

Features

- 1 軸流式泵浦：葉輪為開放型，適用於大流量、低揚程。
 - 2 操作方便：葉輪浸於水面下，不必利用輔助措施(如真空泵浦)，可即時的自動操作而不會有灌水延遲，可遙控操作。
 - 3 柱軸採用"油潤式"，葉輪為開放式之因，可抽取含雜物或粒徑大之流體，軸心保護完整及葉輪不會有阻礙之疑慮。
**若流體乾淨時--軸心可採用開放式，採自身液體潤滑。
 - 4 傳動配置--可採用"馬達"傳動或"引擎"傳動，依客戶要求變動。
- 1 Axial Flow Pump: Open-type Impeller is suitable for larger flow rate and lower Head.
 - 2 Easier operation: By submerging in the water, the Impeller can start automatic operation immediately without using any auxiliary device (e.g. vacuum pump) or causing delayed pumping. Further, it can also be operated remotely.
 - 3 The Line Shaft is configured in "oil lubricating type". Being configured in open type, the Impeller can extract the fluid containing impurities or larger particles. It is configured to fully protect the shaft and will not cause the clogging in the impeller. ◦
**If using clean fluid, then the open-type shaft can be used and will be lubricated by its own fluid.
 - 4 Driving device: Driven by "motor" or "engine", which can be changed according to the customer demand.

主要構造

Structure

- 1 入口殼：以阻力最小的鐘形(類似喇叭口)做成吸入口形狀並有吸入口導葉，而提高泵浦性能。
 - 2 導輪：採用單段設計。
 - 3 葉輪：開放式葉輪，各部份經詳細的流路計算，嚴謹的鑄造過程，使葉輪各處表面光滑平順，且葉輪均經動平衡校正，使泵浦在運轉時平穩且無過大振動。
 - 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。
 - 5 內襯管：保護軸心不接觸抽送流體，避免因顆粒性雜質而造成軸心損壞，以不銹鋼為素材，可採機油或外來水潤滑之。
**若流體乾淨時--軸心可採用開放式，可省略。
- 1 Suction Bellmouth: Fabricated into a bell-type (similar to flare opening) suction inlet configuration in presenting minimum resistance and provided with Suction Port guiding blades to enhance the performance of the pump.
 - 2 Guide Vane: Designed in a single-step type.
 - 3 Impeller: Open-type impeller of which, a detailed flowing path has been calculated for each part. Fabricated with strict casting process, it presents a bright and smooth surface all over the impeller. Further, the kinetic balance is also adjusted for the impeller in order that the pump will operate smoothly without excessive vibration.
 - 4 Shaft: Comprising 3 main portions, i.e. Pump Shaft, Line Shaft, and Head Shaft, which are made of high-class steel and stainless steel. The said shafts are manufactured through precision fabrication in exhibiting tough strength and higher durability.
 - 5 Protective Tube: Protecting the shaft from contacting the fluid during the pumping process, in order to prevent damage to the shaft caused due to granulate impurities. Being made of stainless steel, it can be lubricated with engine oil or fresh water.
**If the fluid is clean, then use the open-type shaft and this step can be ignored.

6 柱管：採用耐銹性優之黑皮鋼管或不銹鋼製，每支標準長度2M以內，管與管以凸緣對接，接合處加裝中間托架，以精確固定軸的中心位置。

7 出口座：特殊的流道設計，流體垂向上轉為水平送出時，能量耗損最小。

8 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評估，使設計壽命最少：25,000小時以上。

**HP>250HP以上或客戶需求時可變更，採用軸向推力由馬達或引擎+角齒輪承受，泵浦側軸承可省略。

9 潤滑：
密閉式軸心--流體有雜質時；潤滑方式：外來水潤滑或機油潤滑。
開放式軸心--流體乾淨無雜質時；潤滑方式：自身液體。

6 Column Tube: Fabricated from black-skin steel tube or stainless steel possessing excellent rust-resistance. Each piece of tube is within 2m of standard length. The butting flange is used for connecting the tubes, with intermediate brackets mounted at the jointing area in order to fix the center position of the shaft accurately.

7 Discharge Head: Designed with a special flowing path that presents minimum energy consumption when pumping the fluid from vertical to horizontal.

8 Bearing: Highest grade of Thrust Bearing is designed for generating the axial thrust. Its size and load are determined through cautious evaluation to achieve over 25,000 hours of minimum design life.

** Change available for the power over 250HP, if required by the customer. The axial thrust will be sustained by motor or engine + angle gear; in this case, the bearing at the pump side can be ignored.

9 **Lubrication:**
Enclosed Shaft: The fluid contains impurities. Lubrication method: With fresh water or engine oil.
Open Shaft: The fluid does not contain impurities. Lubrication method: Self lubrication with its own liquid contained within.

用途

Introduction

- 1 防洪排水用泵。
- 2 原水農耕栽培灌溉、排水用。
- 3 建築工事給水、排水用。
- 4 工廠、事業單位大流量供水用。

- 1 Flood drainage pump.
- 2 Raw water agricultural farming, irrigation and drainage.
- 3 Water supply and drainage for construction project.
- 4 Massive power consumption for factory and industrial facilities.

傳動方式

Drive

- 1 使用立式(凸緣型)馬達傳動。
- 2 使用引擎傳動(配置減速機及角齒輪)。

- 1 Vertical (flange-type) motor driving.
- 2 Engine driving (with reducer and angle gear)

迴轉方式

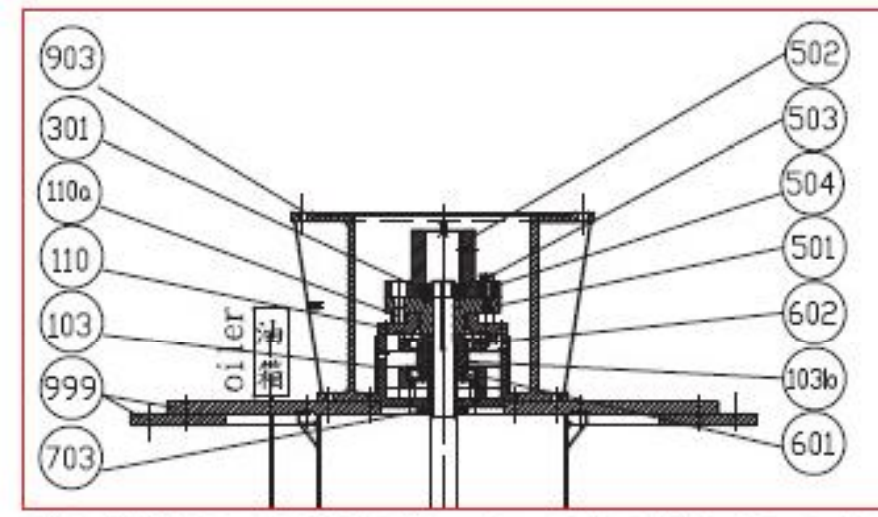
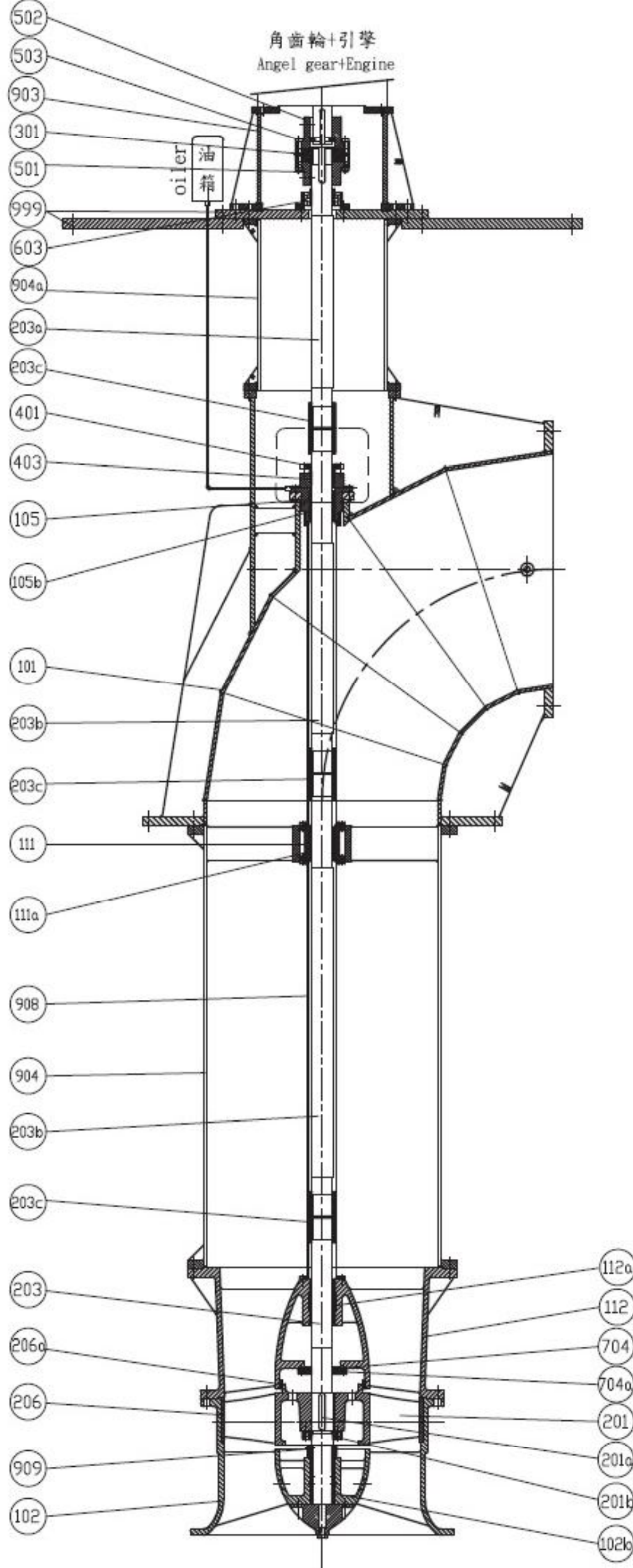
Rotation Direction

由泵浦上方看--反時鐘方向迴轉。

Viewing from above the pump: Counter clockwise rotation.

**密閉式軸 (Enclosed Shaft)

- **軸流式泵浦—大流量, 低揚程用
- **密閉式軸—軸心潤滑採用“油浴式”; 附油箱+注油管
- **地下出口; 傳動採用“引擎+角齒輪”—軸向推力由“角齒輪”承受。
- **構造可依客戶實際需求變動製作。
- **Axial Flow Pump: For larger flow rate, lower head.
- **Enclosed Shaft: The “oil-bath” is designed for the shaft lubrication, complete with oil tank and injection tube.
- **Underground Discharge: Designed in “Engine+Angle Gear” driving, and the axial thrust is sustained by “angle gear”.
- **Flexible custom-made construction according to the customer demand.



配置“馬達”傳動(馬力200HP/4P以下)—泵浦運轉推力由泵浦承受
 Motor driving (below 200HP/4P) design: The pump running thrust is sustained by the pump.
 (軸承潤滑方式—機油潤滑) (Bearing lubrication method: Engine oil lubrication)

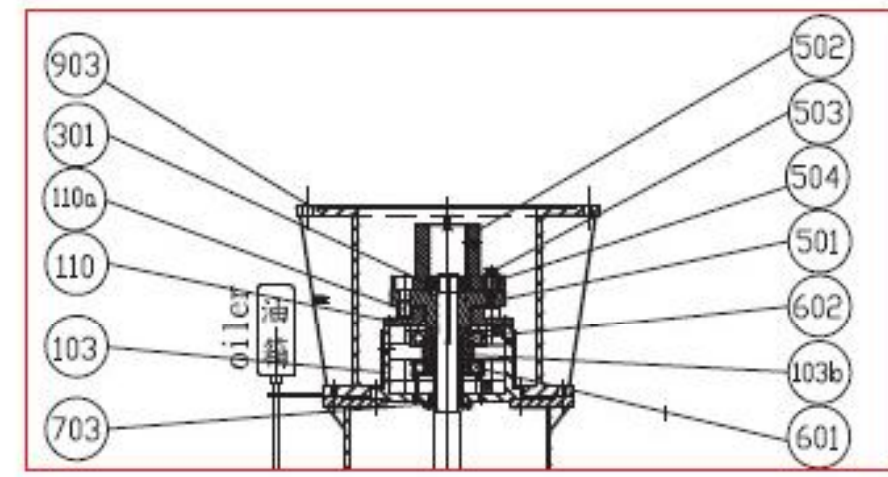
零件表 (Materials of Construction)

編號 NO.	另件名稱	component	材質 Materials
101	出口座	Discharge head	JIS SS400
102	入口殼	Suction bellmouth	ASTM A48-30B
102b	水中軸承	Bearing	BC6
103	軸承箱	Bearing housing	ASTM A48-30B
103b	軸承裡襯	Bearing block	JIS SS400
105	填料函殼	Stuffing Box	ASTM A48-30B
105b	水中軸承	Bearing	BC6
110	逆止盤	Ratchet wheel	ASTM A48-30B
110a	逆止桿	Ratchet Bar	JIS SS400
111	中間支撐架(接頭)	Shafting bracket (tube coupling)	ASTM A48-30B (JIS SS400)
111a	水中軸承	Bearing	BC6
112	導輪	Guide Vane	ASTM A48-30B
112a	水中軸承	Bearing	BC6
201	葉輪	Impeller	ASTM A743 CF-8M
201a	葉輪鍵	Impeller key	SUS304
201b	分割環+押蓋	Lantern ring+Cover	SUS304
203	泵軸	Pump Shaft	ASTM A276-410
203a	頂軸	Head Shaft	ASTM A276-410
203b	柱軸	Line Shaft	ASTM A276-410
203c	軸接頭	Shaft Coupling	JIS SS400
206	入口殼磨損環	Suction bellmouth wear ring	ASTM A276-SCS13A
206a	導輪磨損環	Guide Vane wear ring	ASTM A276-SCS13A
301	調整螺母(法蘭)	Shaft (flanged) adjusting	JIS SS400 (JIS S45C)
401	填料蓋	Gland	ASTM A48-30B
403	填料	Packing	V#133
501	泵浦側聯軸器	pump side coupling	ASTM A48-30B (JIS S45C)
502	傳動側聯軸器	Drive side coupling	ASTM A48-30B (JIS S45C)
503	聯軸器螺柱	Coupling bushing	JIS SS400
504	聯軸器橡膠	Coupling nut	RUBBER
601	止推軸承	Thrust Bearing	
602	球軸承	Ball Bearing	
603	連座軸承	Ball bearing unit	
703	封油管	Oil Guard Pipe	JIS SS400
704	油封	Oil Seal	RUBBER
704a	油封押蓋	Oil Seal cover	SUS304
903	馬達座(角齒輪座)	Motor(gear) pedestal	ASTM A48-30B (JIS SS400)
904	柱管	Column pipe	JIS SS400
904a	防護柱管	Protect pipe	JIS SS400
908	內襯管	Protective tube	ASTM A276-304
909	防砂帽	Anti-Sand protector	BC6
999	底板(基座底板)	Baseplate	JIS SS400

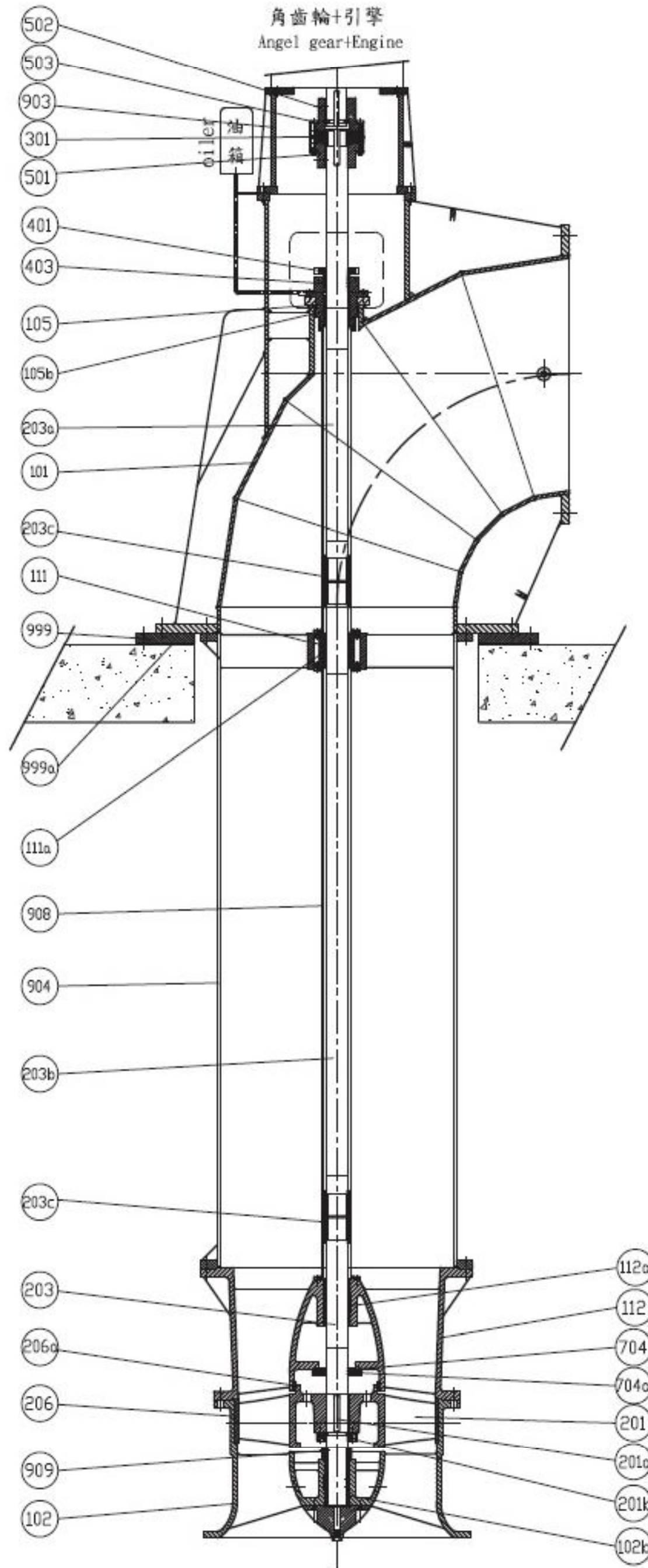
附註 Remark
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 (JIS & ASTM standard will be based for manufacturing the material when required by the customer.)
 2-製作方式若有特殊要求, 可依客戶要求設計製作。
 (If special manufacturing method is required, we can also provide design and manufacturing services according to the customer demand.)

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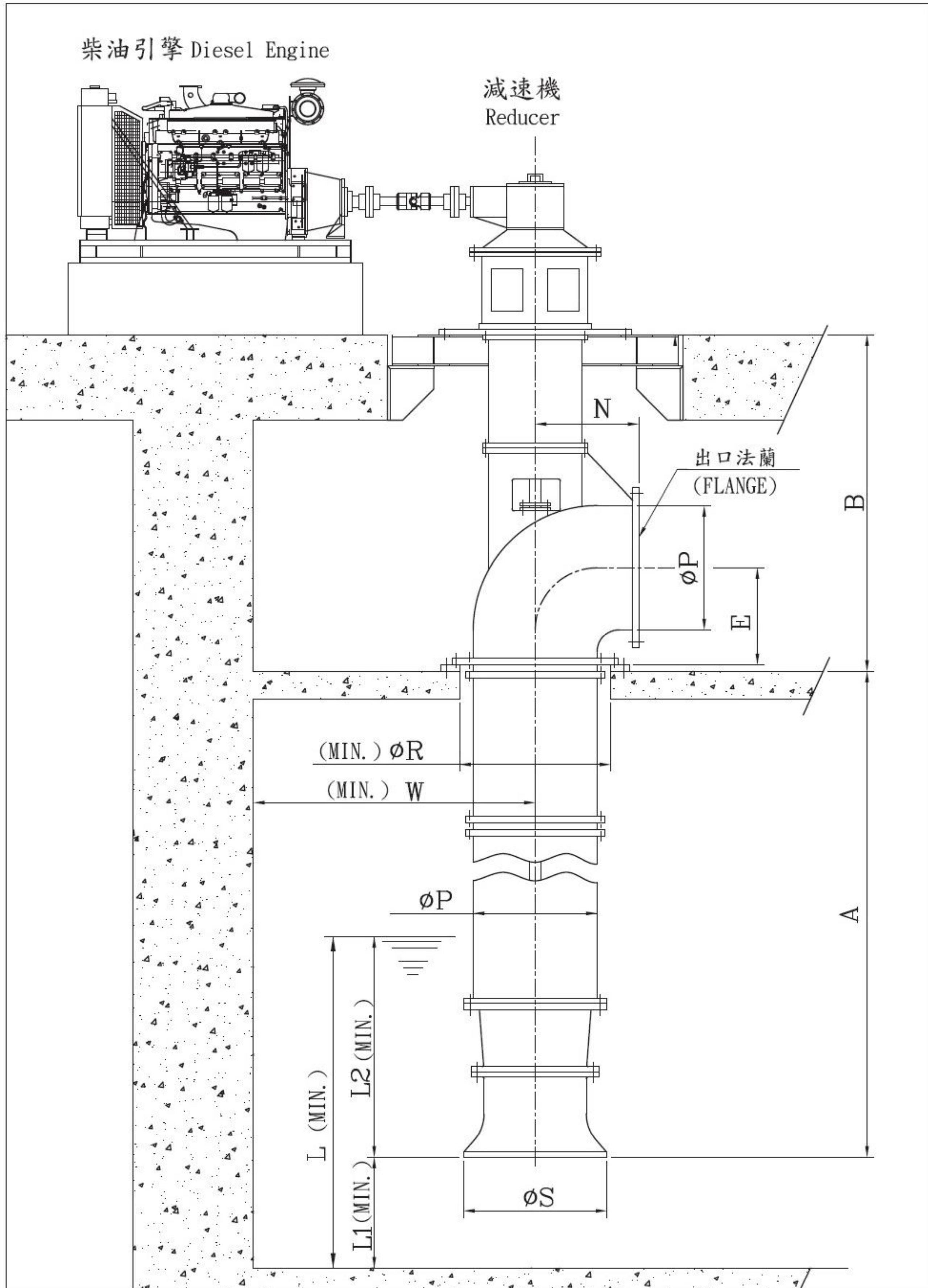
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999	底板(基座底板)	Baseplate	JIS SS400
999a	底板襯墊	Baseplate packing	NBR

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豎軸泵浦外型尺寸圖(軸流式)

VERTICAL CENTRIFUGAL PUMP DIMENSIONS (AXIAL FLOW)

單位Unit: mm

型式 Model	尺寸Dim. Nozzle	口徑 Nozzle	ØP	E	N	ØR	ØS	L1	L2	L	W	備註 Remark
VT-450	Ø400	400	400	400	400	660	635	400	700	1,100	400	
	Ø450	450	450	450	450	660	635	450	850	1,300	450	
	Ø500	500	500	500	500	660	635	500	900	1,400	500	
VT-650	Ø600	600	600	600	600	780	750	600	1,050	1,750	600	
	Ø650	650	650	650	650	810	750	650	1,100	1,750	650	
VT-701	Ø650	650	650	650	650	880	850	650	1,100	1,750	650	
	Ø700	700	700	700	700	880	850	700	1,200	1,900	700	
	Ø750	750	750	750	750	900	850	750	1,250	2,000	750	
VT-800	Ø800	800	800	800	800	975	850	800	1,300	2,100	800	
	Ø700	700	700	700	700	960	930	700	1,200	1,900	700	
	Ø750	750	750	750	750	960	930	750	1,250	2,000	750	
VT-801	Ø800	800	800	800	800	975	930	800	1,300	2,100	800	
	Ø900	900	900	900	900	1,080	930	900	1,500	2,400	900	
	Ø650	650	650	650	650	1,000	970	650	1,100	1,750	650	
	Ø700	700	700	700	700	1,000	970	700	1,200	1,900	700	
VT-1000	Ø750	750	750	750	750	1,000	970	750	1,250	2,000	750	
	Ø800	800	800	800	800	1,000	970	800	1,300	2,100	800	
	Ø800	800	800	800	800	1,150	1,120	800	1,300	2,100	800	
VT-1001	Ø900	900	900	900	900	1,150	1,120	900	1,500	2,400	900	
	Ø1000	1,000	1,000	1,000	1,000	1,180	1,120	1,000	1,600	2,700	1,000	
VT-1002	Ø800	800	800	800	800	1,060	1,030	800	1,300	2,100	800	
	Ø900	900	900	900	900	1,080	1,030	900	1,500	2,400	900	
	Ø1000	1,000	1,000	1,000	1,000	1,180	1,030	1,000	1,600	2,700	1,000	
VT-1200	Ø900	900	900	900	900	1,240	1,200	900	1,500	2,400	900	
	Ø1000	1,000	1,000	1,000	1,000	1,240	1,200	1,000	1,600	2,700	1,000	
	Ø1100	1,100	1,100	1,100	1,100	1,295	1,200	1,100	1,800	2,900	1,100	
VT-1201	Ø1000	1,000	1,000	1,000	1,000	1,400	1,360	1,000	1,600	2,700	1,000	
	Ø1100	1,100	1,100	1,100	1,100	1,400	1,360	1,100	1,800	2,900	1,100	
	Ø1200	1,200	1,200	1,200	1,200	1,415	1,360	1,200	2,000	3,200	1,200	
VT-1202	Ø1000	1,000	1,000	1,000	1,000	1,520	1,470	1,000	1,600	2,700	1,000	
	Ø1100	1,100	1,100	1,100	1,100	1,520	1,470	1,100	1,800	2,900	1,100	
	Ø1200	1,200	1,200	1,200	1,200	1,520	1,470	1,200	2,000	3,200	1,200	
VT-1203	Ø1100	1,100	1,100	1,100	1,100	1,600	1,550	1,100	1,800	2,900	1,100	
	Ø1200	1,200	1,200	1,200	1,200	1,600	1,550	1,200	2,000	3,200	1,200	
	Ø1350	1,350	1,350	1,350	1,350	1,600	1,550	1,350	2,300	3,650	1,350	
VT-1203	Ø1200	1,200	1,200	1,200	1,200	1,700	1,650	1,200	2,000	3,200	1,200	
	Ø1350	1,350	1,350	1,350	1,350	1,700	1,650	1,350	2,300	3,650	1,350	
	Ø1500	1,500	1,500	1,500	1,500	1,750	1,650	1,500	2,400	3,900	1,500	

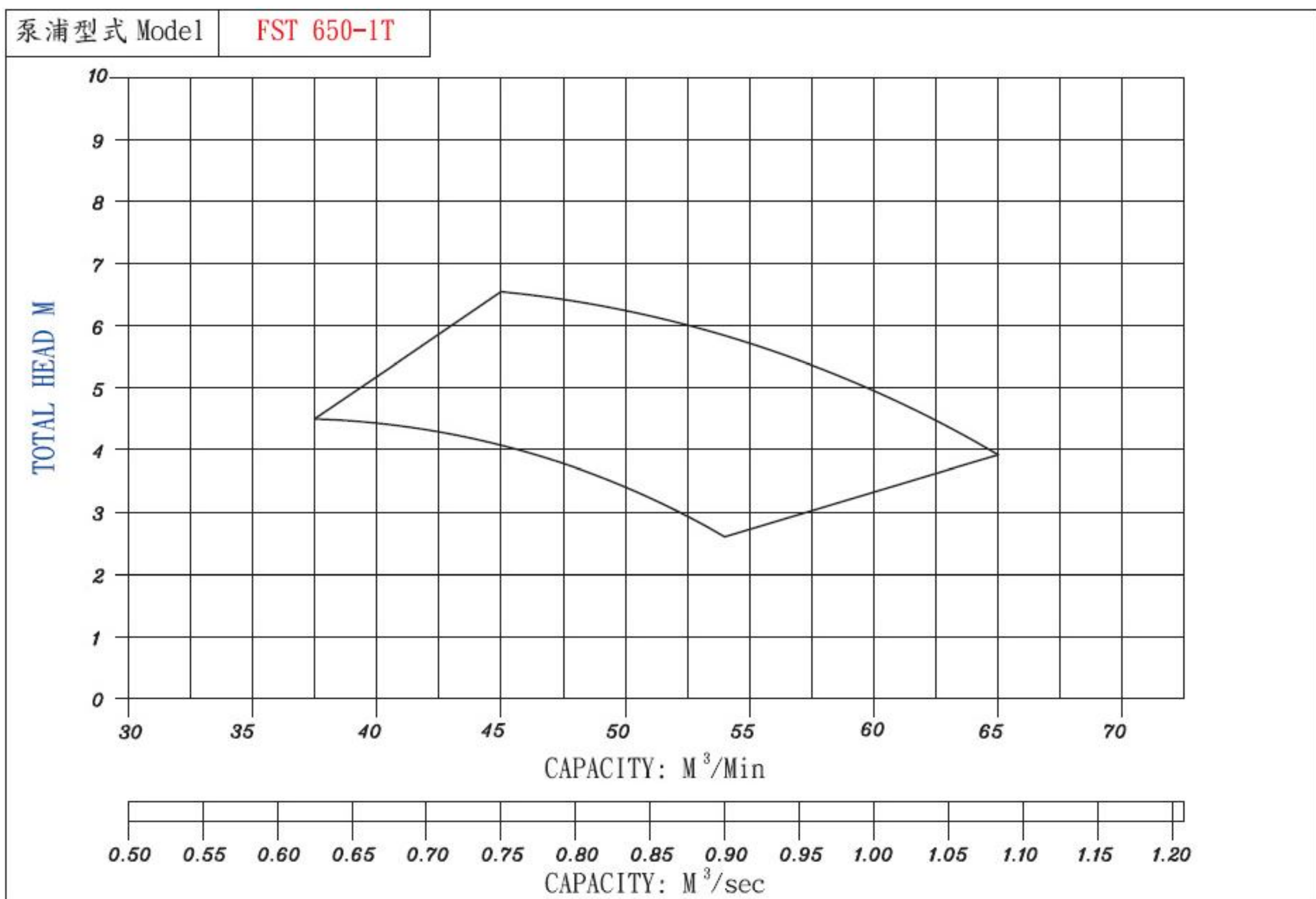
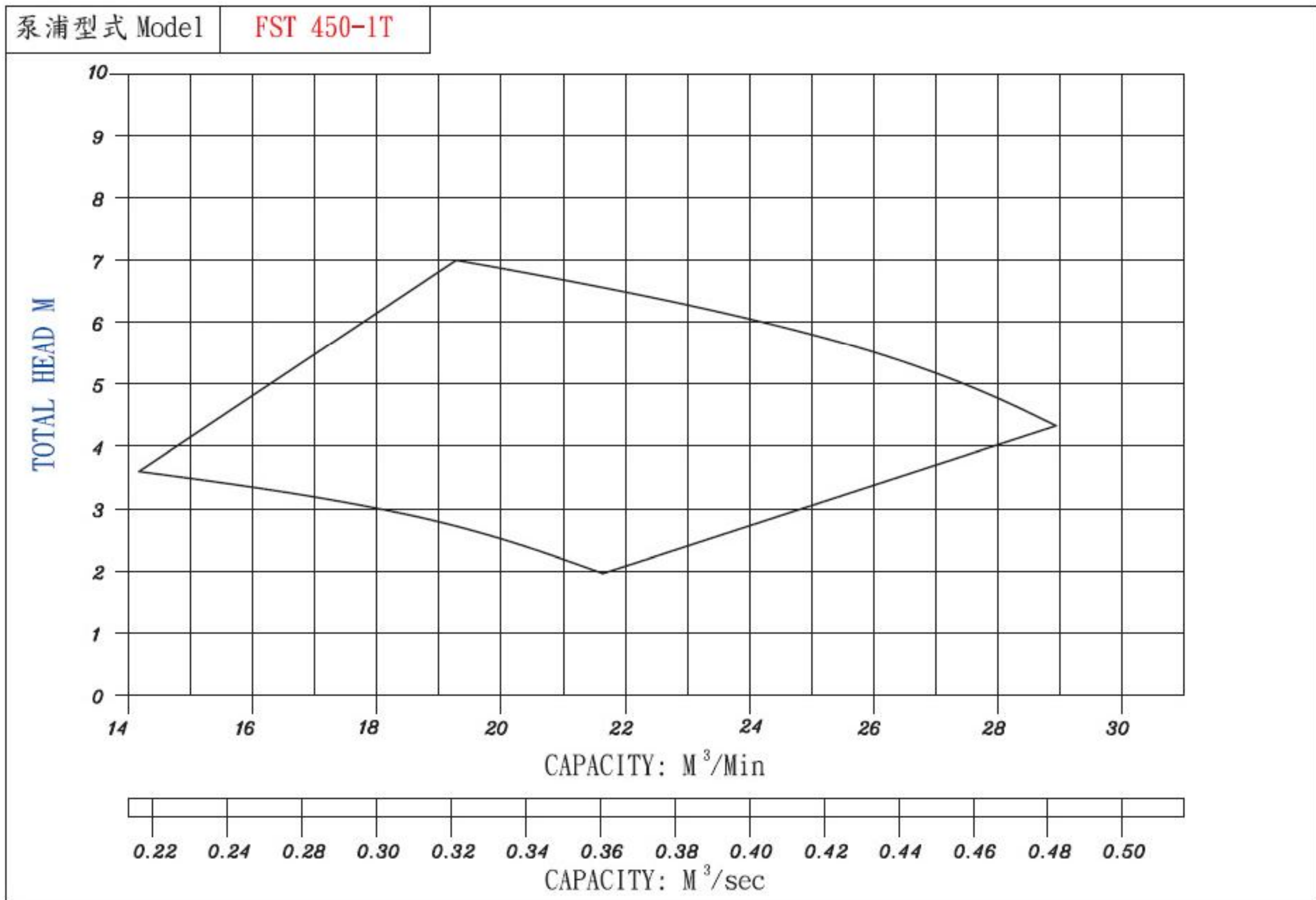
**A, B值可依客戶要求或設計需要製作。

**The A, B values can be ordered according to the customer demand or the design requirements.

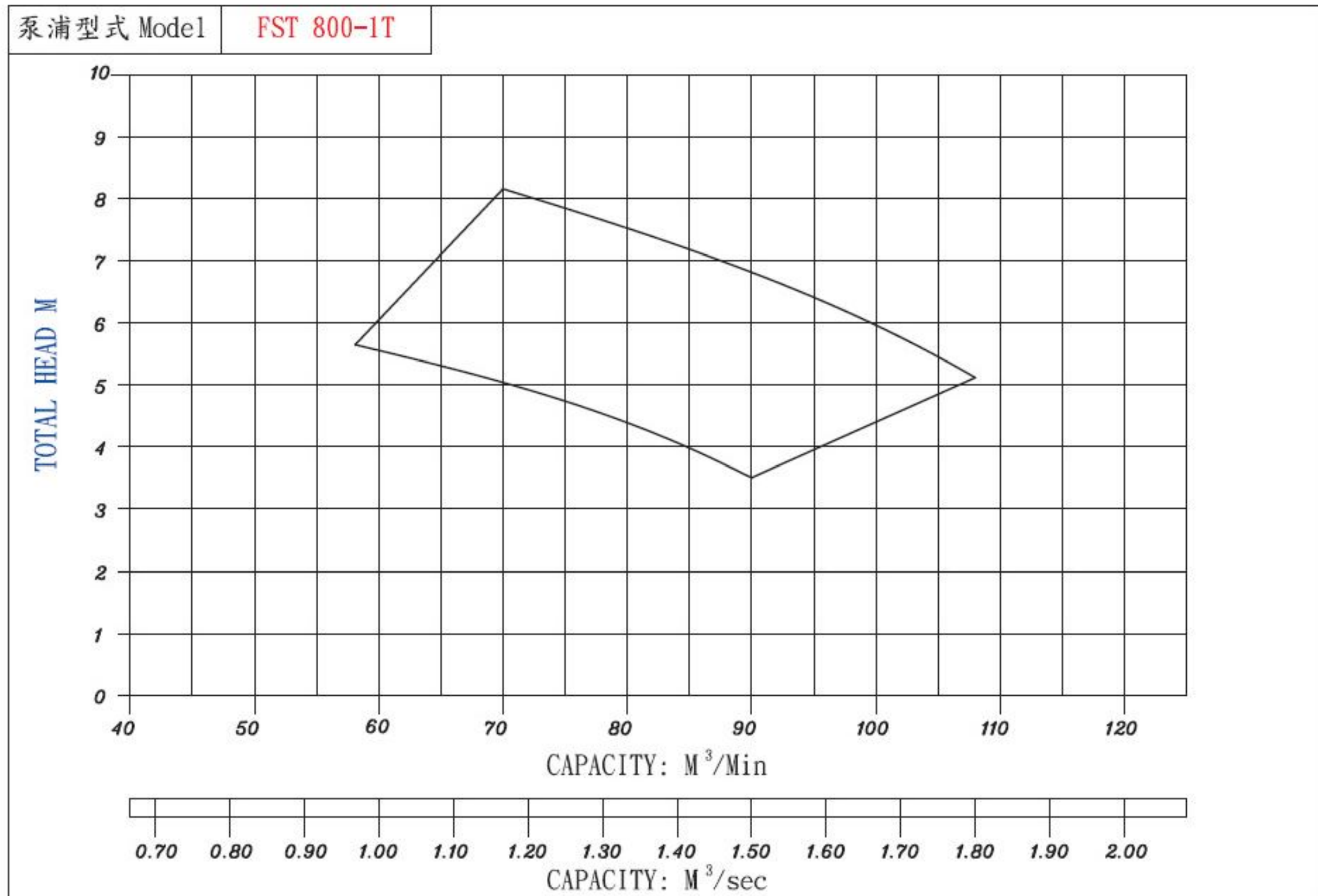
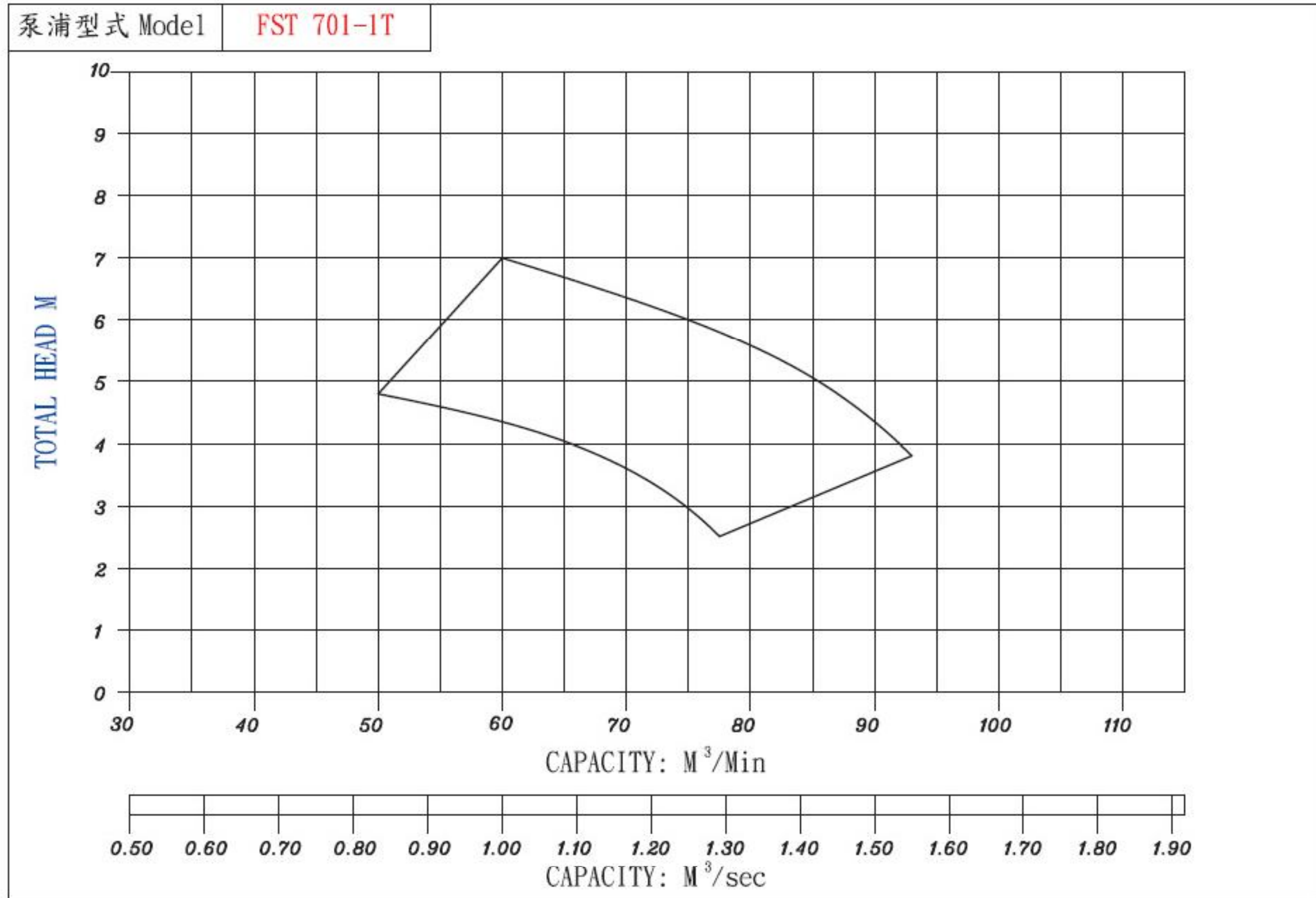
**大口徑, 大流量之豎軸軸流泵浦變化較大, 無法詳述--若有特殊需求, 可另行開發及設計

**As bigger diameter and larger flow rate Vertical Axial Flow Pump tends to present significant changes, other details cannot be described here. In case of special requirements, it can be specifically developed and designed.

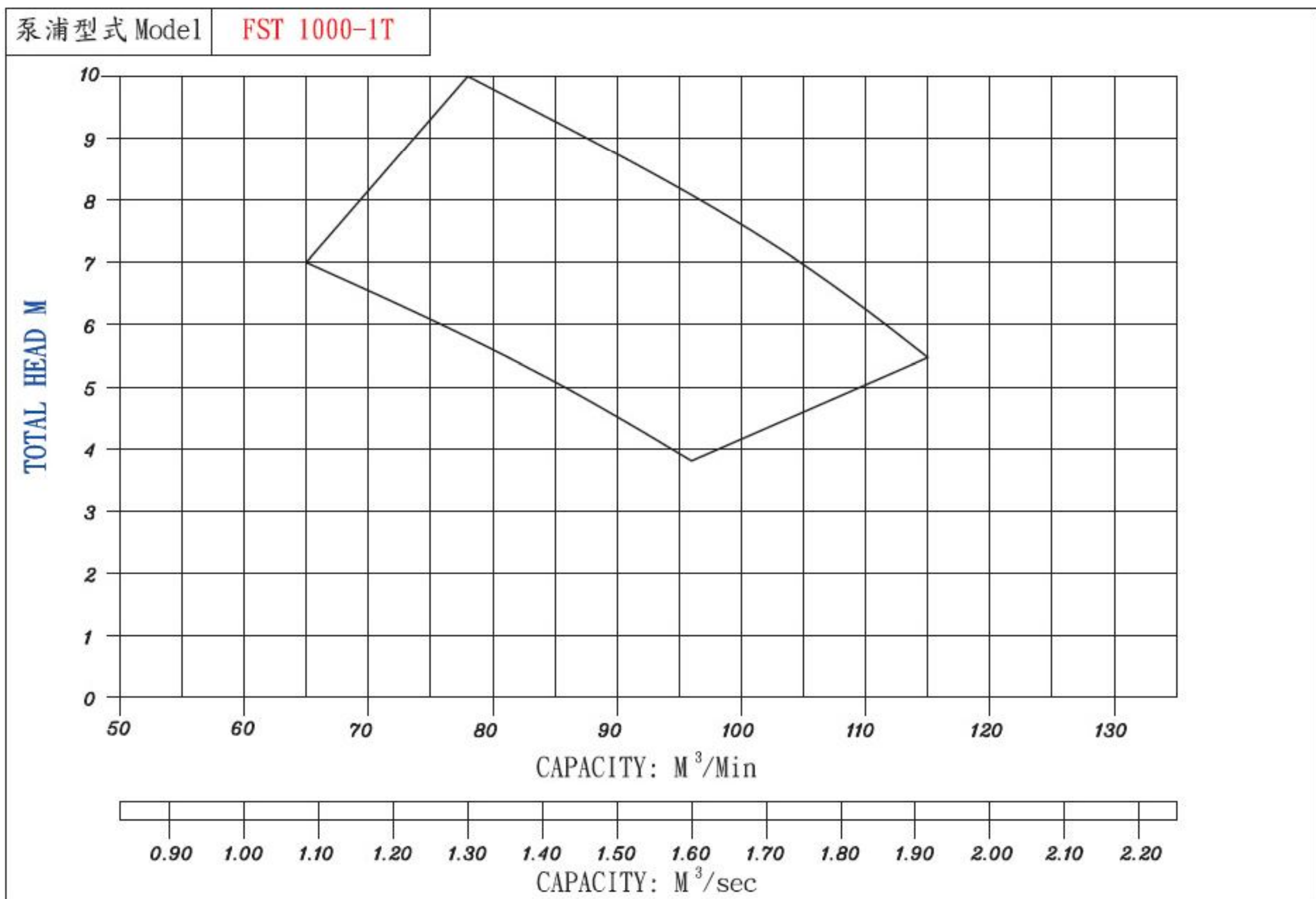
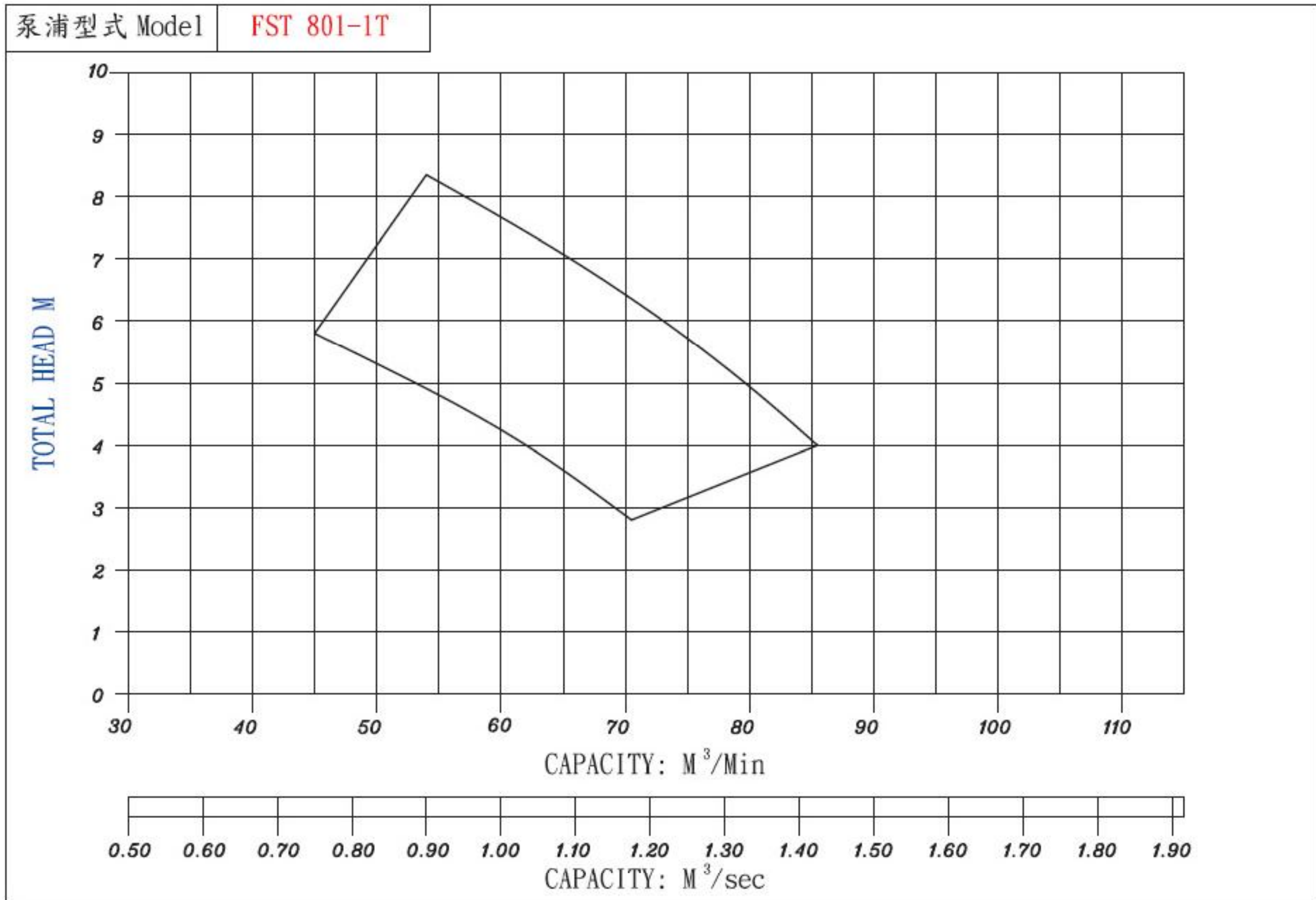
性能曲線(Performance Curve)



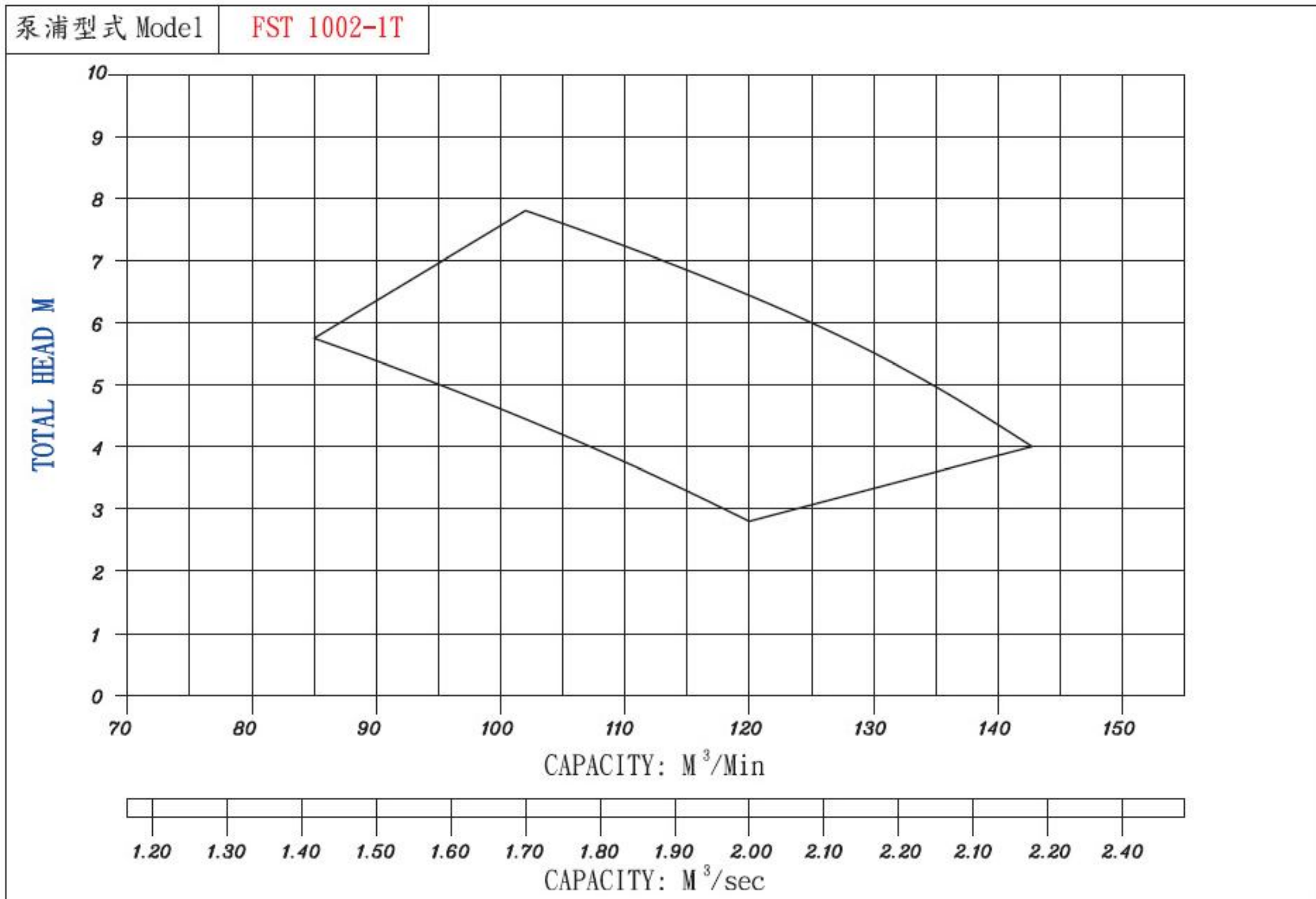
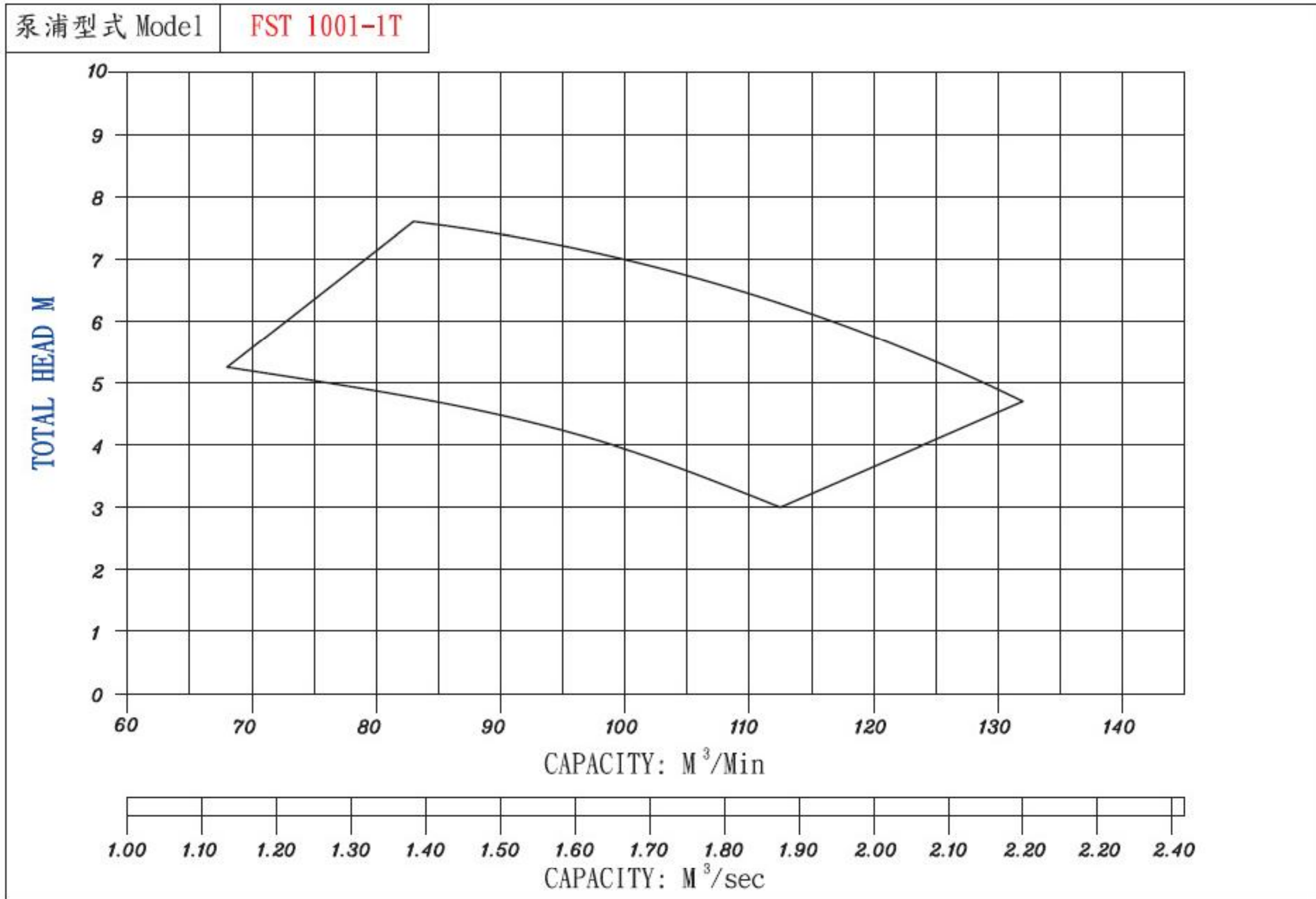
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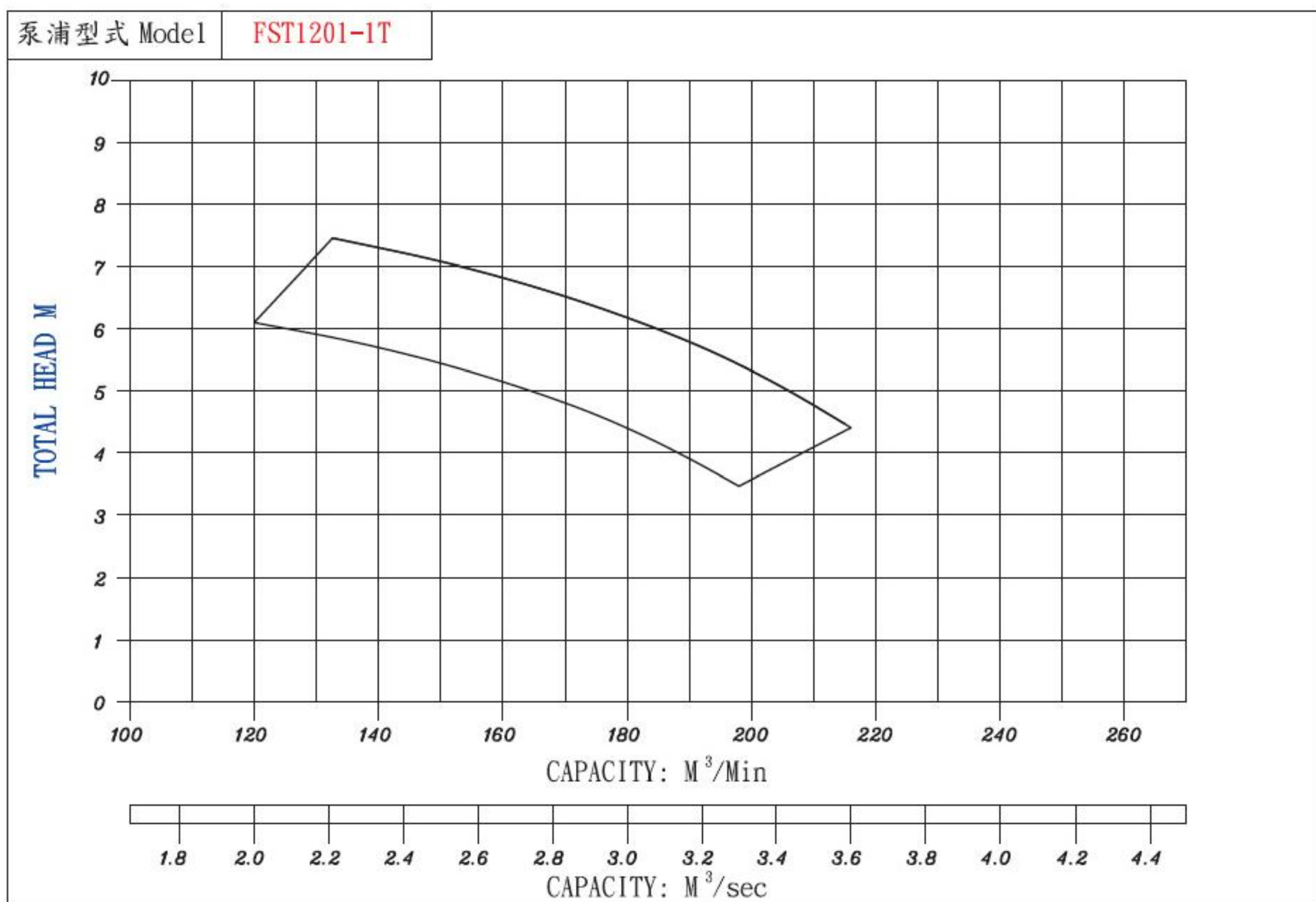
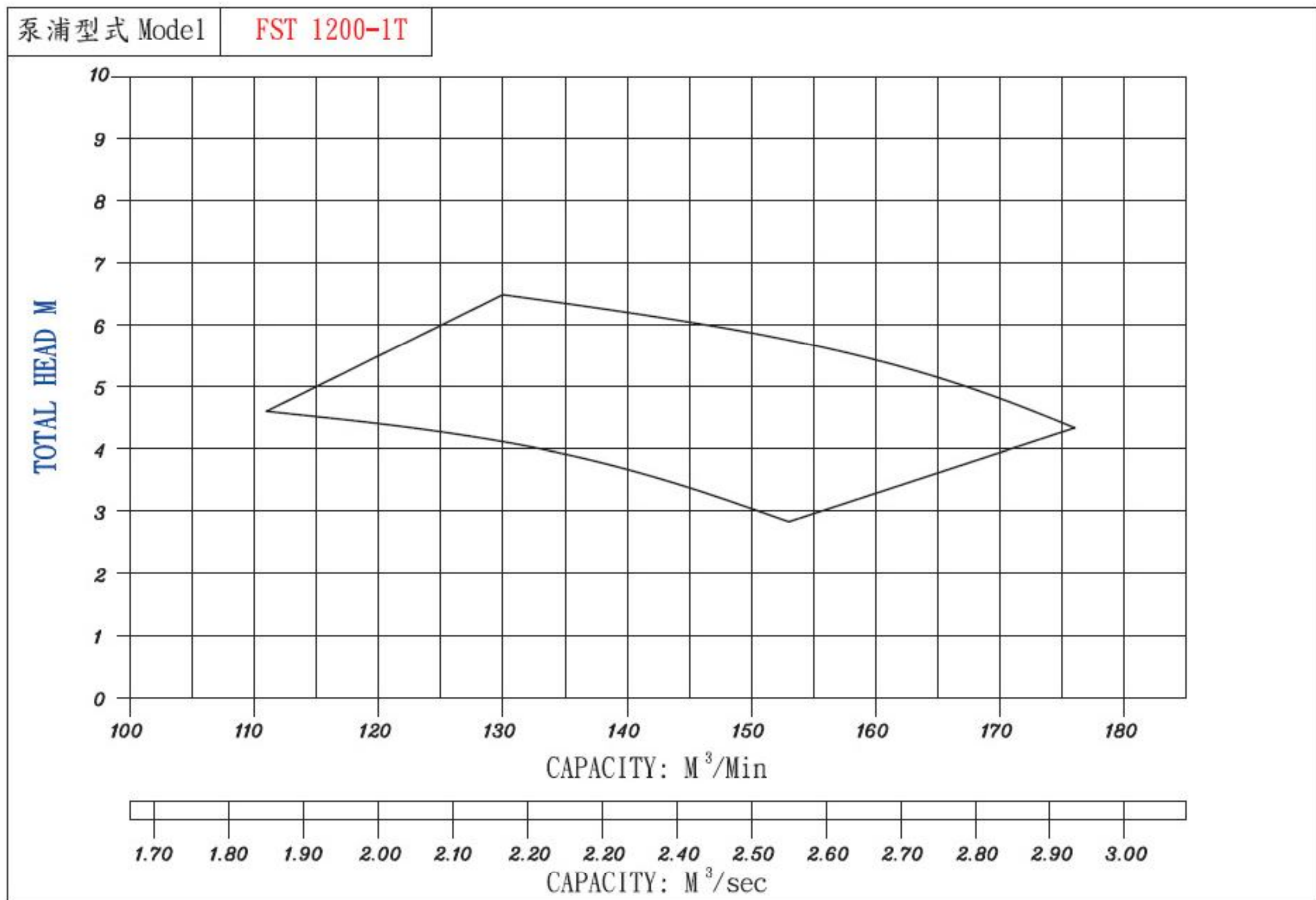
性能曲線(Performance Curve)



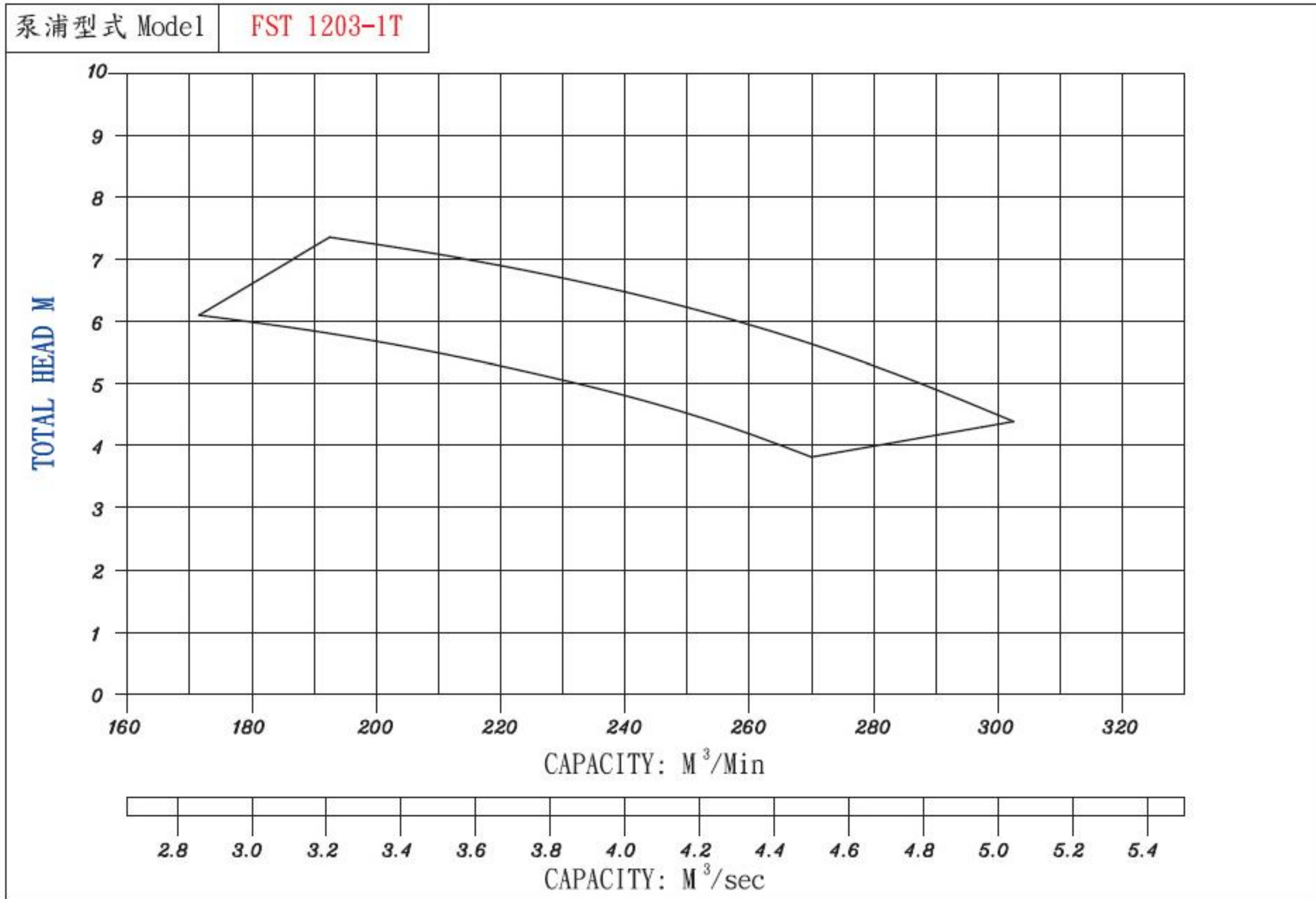
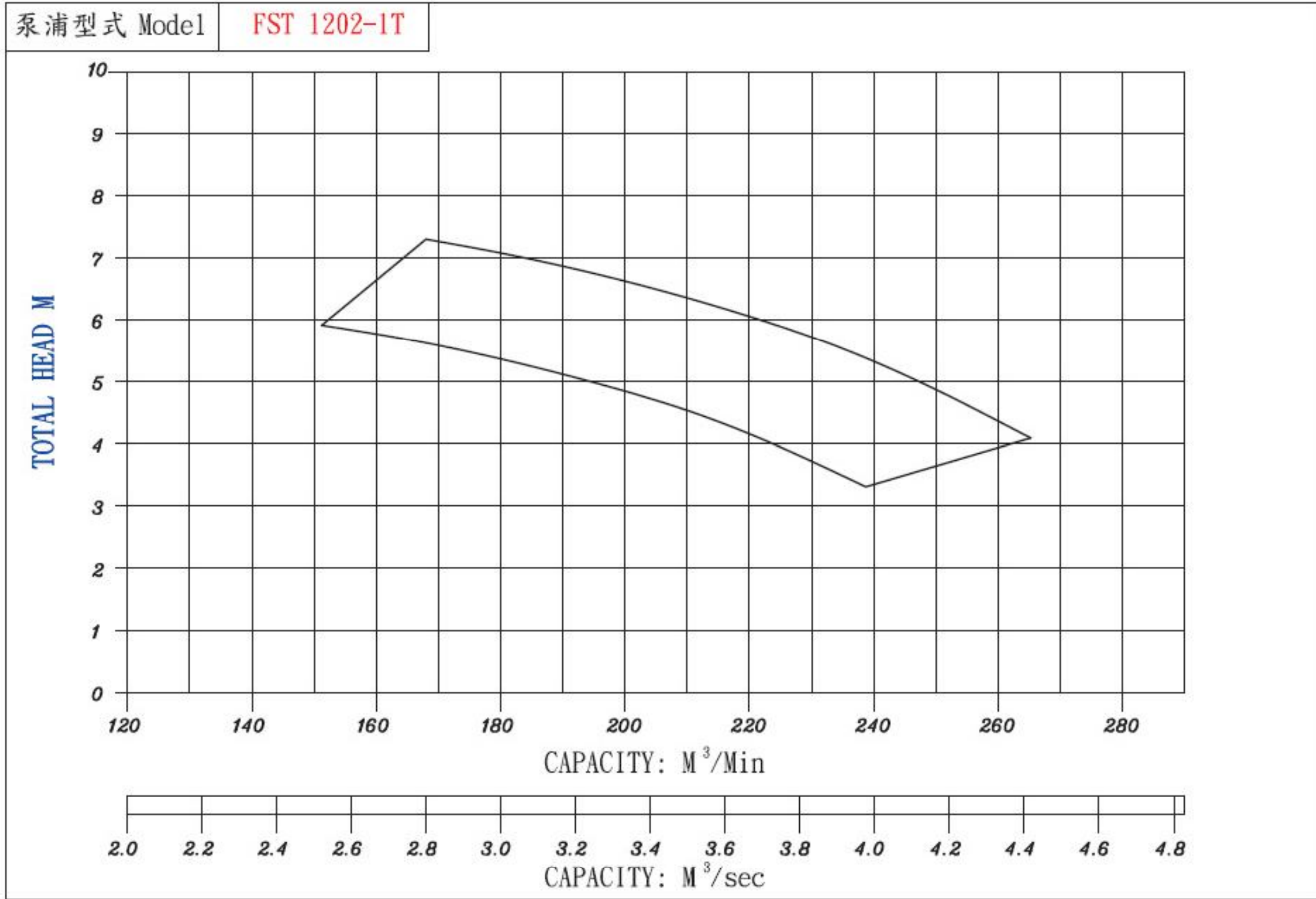
性能曲線(Performance Curve)



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搭配萬向接頭、角齒輪減速機及柴油引擎，利用公司之大全幅堰試水池，進行運轉測試
Configured with Universal Coupling, Angle Gear Reducer and Diesel Engine, and the operation test is executed in the company's Full-scale Test Water Pond.



搭配萬向接頭、角齒輪減速機及柴油引擎，利用公司之大全幅堰試水池，進行運轉測試
Configured with Universal Coupling, Angle Gear Reducer and Diesel Engine, and the operation test is executed in the company's Full-scale Test Water Pond.

如蒙洽詢請指示下列各項

Request for information

- 1.液體 : _____
- 2.出水量 : _____ M³/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/cm²(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 : _____ M³/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/cm²(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

THAILAND : THAI PINNACLE ENGINEERING CO.,LTD
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