

# AME

系列  
SERIES

金屬 PFA 內襯磁力驅動泵浦  
PFA LINED MAGNETIC DRIVE PROCESS PUMP



- 高剛性前蓋固定軸支撐。  
Integral casing and front shaft support.
- 高效率逆設計葉片及渦卷流道設計。  
High efficiency hydraulic volute design with inverse-designed impeller.
- 低NPSHr吸入口。  
Low NPSHr suction.

專利申請中 Patent pending

 **ASSOMA INC** 協磁

[http : //www.assoma.com.tw](http://www.assoma.com.tw)

自無軸封泵浦使用工程塑膠作為接液材質以來，軸支撐系統設計一直是眾所關心的議題。 Since the development of seal-less pumps made of engineering plastics, shaft support systems have been an area of concern.

由於泵浦運轉時產生的流動、壓力、轉子重量及軸承間隙等因素，會產生不平衡靜壓、軸向力及離心徑向力等各種負荷，而其合力會產生合力矩並施加在軸支撐結構上。

During pump operation, factors such as fluid flow, pressure, rotor weight, bearing clearance, etc., will result in static pressure imbalance, radial, and axial forces. These forces combined will create a moment of force on the shaft support structure.

傳統全塑膠結構的泵浦受限於工程塑膠低的彈性模數及耐溫性，無法滿足高負荷或高耐溫等級的化工泵浦的需求，在抵抗各種負荷時常面臨一些難以克服的挑戰，並且無法和全金屬材質的結構相比。尤其當無軸封泵浦的軸心及其支撐結構是位在泵殼內，其接液材質必須具備耐化性及耐溫性，且必須抵抗葉輪重量及運轉時的水力徑向負荷。若軸支撐的剛性不足，就易造成葉輪不穩定運轉、震動劇烈、加速磨耗，進而降低運轉壽命。因此，塑膠泵殼必須輔以金屬和高強度複合材料外襯才能滿足ISO 2858之16 bar耐壓設計。

The structural strength of a traditional fully plastic pump is limited by the low elastic modulus and poor thermal resistance of the engineering plastic, making them unsuitable for heavy load and/or high temperature chemical applications. For seal-less pumps, the shaft and its support structure are fully enclosed within the pump casing, therefore, the material must provide chemical and thermal resistance, and must also be able to withstand the weight of the impeller and the various radial forces generated during operation. If the support strength for the shaft is insufficient, the impeller will be destabilized, resulting in excessive vibration and wear, thus, reducing the pump's service life. For this reason, the pump housing should be supported by a casing using metallic and high strength composite material to meet the 16 bar design requirement of ISO 2858.

ASSOMAAME系列是性能優異的泵浦，能同時兼顧水力及結構設計來滿足各種用途下的各種負荷需求，使泵浦能運轉於高效率並提高運轉壽命。

ASSOMA's AME pumps are high performance pumps. We take into consideration hydraulic and structural designs that can withstand the loads generated by a wide range of operating conditions, hence, achieving high operational efficiency and long service life.

ASSOMAAME系列泵浦就是針對高負荷或高耐溫等級的化工用途而設計，其結構特徵就是採用高強度的FCD鑄鐵外殼，用來滿足管路負荷與ISO 2858之16 bar工作壓力的需求，並在接液側輔以一體成形PFA塑膠，使其具優異抗化性、耐候性及耐溫性，能滿足高溫高壓下高腐蝕性藥液的輸送。

The AME-series pumps are designed for heavy load and high temperature chemical applications. Its structure uses high strength FCD cast iron casing to meet the 16 bar pressure requirement for ISO 2858. The wetted surfaces comprised of one-piece molded PFA engineering plastics, offering excellent chemical resistance, weather resistance and temperature resistance to meet the needs of the applications.

ASSOMAAME系列泵浦的高剛性軸心支撐結構，是能提供長效的運轉壽命的關鍵因素之一；尤其與泵殼一體成型的前軸心支撐更是創新的設計，由泵殼入口內側成直角V形結構並向內懸臂延伸，其外表完全由PFA材質一體包覆，透過FCD鑄鐵能提供高剛性支撐，使葉輪轉子能穩定運轉於跨距支撐的固定軸，並能大幅縮短軸心之軸向長度。

The highly rigid shaft support system of the AME series pumps is a main factor in prolonging its service life. The front shaft support and the front casing are formed in a one-piece FCD cast with the v-shaped shaft support structure cantilevering into the pump. The sturdiness of this structure provides a stable support for the impeller and allows for a shorter axial span distance for the fixed shaft.

在水力設計方面，AME系列以逆設計法從葉片入口到出口，以最佳的流線速度分佈及負載分佈反推葉片幾何，並且以渦卷泵殼來充分保存葉輪對輸送液所作的水功率，即泵殼流體流動更趨向「自由渦流」，降低不必要的衝擊損失及水流噪音，並順利將流體動能轉化為壓力能。同時亦平衡葉輪在泵殼中所受徑向力，降低軸承負荷。

For the pump hydraulic, we applied inverse design method from the impeller's inlet to its outlet to derive the impeller's blade geometry through optimized flow velocity and load distribution. The volute casing was designed to allow liquid flow to approach free vortex, eliminating unnecessary energy loss and noise, and successfully converting flow kinetic energy to pressure potential energy. This design will also balance the radial force experienced by the impeller and reduce the loading on the bearing.

- ◎ 符合ISO 2858、3661安裝規格。  
Comply with ISO 2858 and ISO 3661 standards.
- ◎ 出入口法蘭可搭配 DIN、ANSI或JIS規格。  
DIN, ANSI, and JIS connections available.
- ◎ 高純度PFA接液材質，符合潔淨度要求。  
High purity PFA wetted material meets cleanliness requirements.
- ◎ 耐強腐蝕液體。  
Resistant to highly corrosive chemicals.
- ◎ 操作溫度可達150°C。  
May be used for chemicals up to 150°C.
- ◎ 耐高溫SmCo稀土磁鐵(內輪)搭配高磁能積NdFeB磁鐵(外輪)。  
SmCo rare earth magnet (inner magnet capsule) for temperature resistance and NdFeB drive magnet with high energy product.
- ◎ 適用於半導體、平面顯示器、太陽能、特用化學及石油化學等產業。  
Suitable for semi-conductor, flat panel display, solar, specialty chemical and petrochemical applications.

#### 後軸心支撐 Rear Shaft Support :

高強度碳纖維複合材料包覆金屬支撐環，和前支撐組合以跨距支撐方式降低軸心力矩及位移量。  
Metal support rings coated with high-strength carbon fiber composite, forming double-ended support with the front to reduce moment and shaft displacement.

#### 前軸心支撐 Front Shaft Support :

與FCD450前蓋一體成型外襯PFA接液材質，與軸心接合於泵殼內，不影響泵入口流道。  
PFA lining formed onto the FCD450 casing, with the shaft support extending into the impeller, avoiding interference to the flow path.

#### 軸心 Shaft :

SSiC或Al<sub>2</sub>O<sub>3</sub>，緊配於軸心支撐。  
SSiC or Al<sub>2</sub>O<sub>3</sub> tightly fitted to the shaft support.

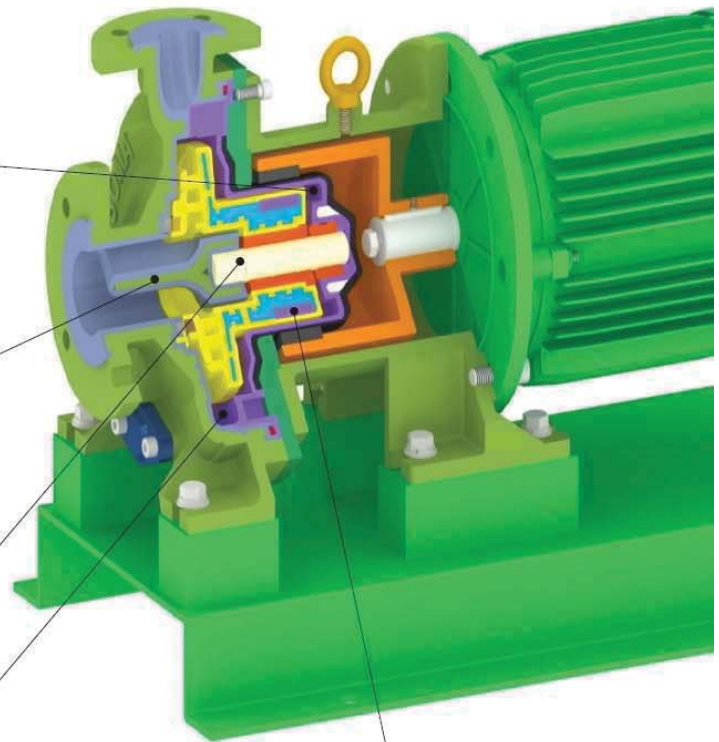
#### 徑向平衡渦卷泵殼

##### Balanced volute casing :

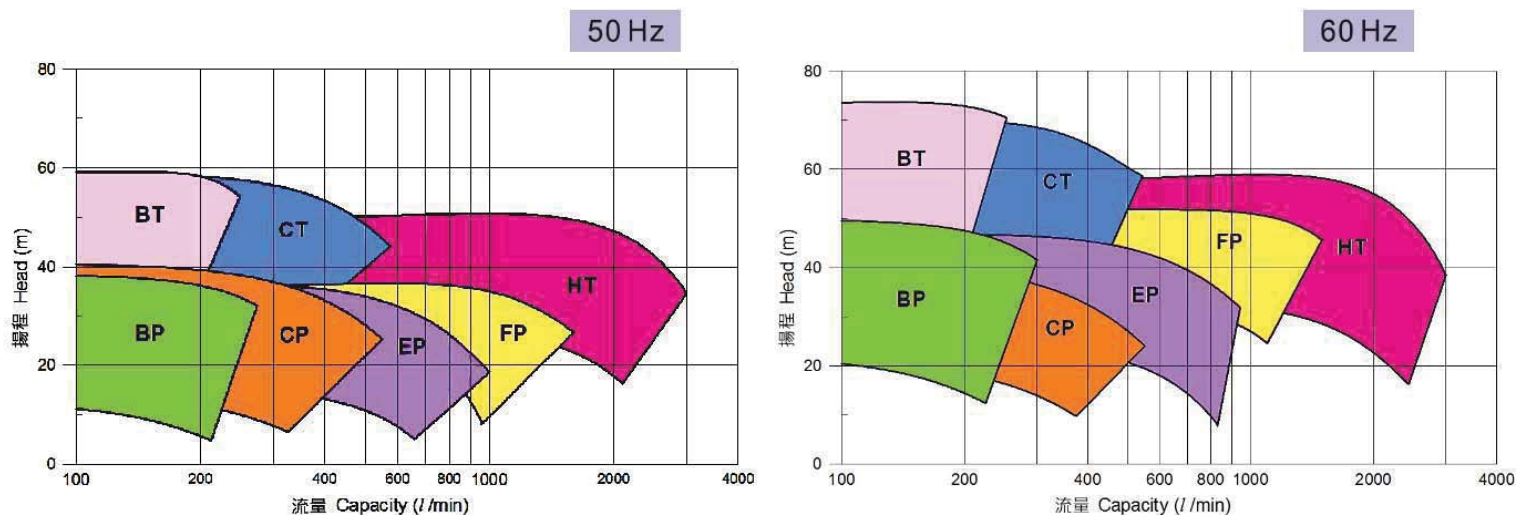
將部分徑向負荷轉移至泵殼，降低轉子受不平衡壓力分佈所造成的徑向力。  
Part of radial load absorbed by the casing for a more balanced load distribution on the impeller.

#### 磁耦合器 Magnetic coupling :

包膠內輪使用SmCo稀土磁鐵搭配高磁能積NdFeB外輪驅動磁鐵，提供高傳動扭矩並且抵抗高溫退磁。  
The inner magnet capsule, made of SmCo, is coupled with a high energy product NdFeB drive magnet to provide high torque transmission as well as resist demagnetization from high operating temperature.



## 性能曲線圖 PERFORMANCE CURVES



## 規格表 SPECIFICATIONS

機型 Model	入口 x 出口 口徑(mm) Inlet x Outlet bore size (mm)	50Hz				60Hz				馬達 Motor (kW)
		葉輪尺寸 Impeller diameter (mm)	流量 Capacity (l/min)	全揚程 Total head (m)	軸功率 Shaft power (kW)	葉輪尺寸 Impeller diameter (mm)	流量 Capacity (l/min)	全揚程 Total head (m)	軸功率 Shaft power (kW)	
AME-BP	40 x 25	168	180	36.7	1.9	160	180	48.1	2.8	1.5, 2.2 or 3.7
		140	180	19.7	1.3	140	180	34.6	1.9	
AME-BT	40 x 25	210	180	58.7	4.0	195	180	72.2	5.3	5.5 or 7.5
		170	180	36.3	2.4	140	180	34.0	2.3	
AME-CP	50 x 32 50 x 40	168	333	35.6	3.3	140	333	35.3	3.4	1.5, 2.2 or 3.7
		140	250	26.2	1.9	120	250	22.2	1.8	
		130	250	21.4	1.5	110	250	18.7	1.6	
AME-CT	50 x 32 50 x 40	210	350	54.9	6.3	185	350	62.1	7.3	5.5 or 7.5
		170	350	33.9	3.7	150	350	38.7	4.3	
AME-EP	65 x 50	168	500	34.6	4.8	155	500	41.6	5.8	5.5 or 7.5
		150	500	25.8	3.7	135	500	28.6	4.2	
AME-FP	80 x 65	170	833	33.2	6.8	172	1000	48.4	12.1	5.5, 7.5, 11, 15 or 18.5
		150	833	23.0	4.7	150	1000	32.6	8.4	
AME-HT	100 x 80	200	2500	42.2	23.1	185	2500	50.5	26.8	11, 15, 18.5, 22 or 30
		180	2000	33.1	15.6	165	2000	39.2	17.5	
		160	1500	25.4	10.0	150	1500	32.2	11.7	

## 型式表示 PUMP IDENTIFICATION

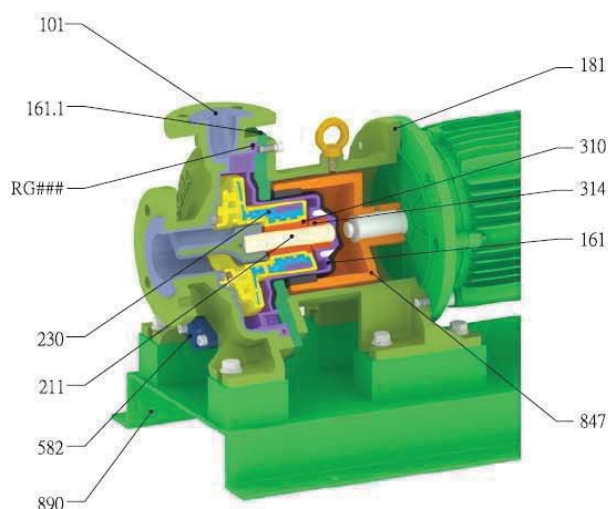
AME — HT F A S S V — 300 0

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① 泵浦系列 Series Symbol	AME 系列 AME Series
② 機型表示 Pump model	對應 ISO 2858 之泵浦命名 Pump designation according to ISO 2858 BP: 40-25-160 BT: 40-25-200 EP: 65-50-160 CP: 50-32(40)-160 CT: 50-32(40)-200 FP: 80-65-160 HT: 100-80-200
③ 配管形式 Type of Connection	F: 法蘭 Flange
④ 本體內襯材質 Casing lining Material	A: PFA T: ETFE (HT Casing Only)
⑤ 軸心/後止推材質 Shaft / Rear Thrust Ring Material	S: SSiC / SSiC T: 995 Al <sub>2</sub> O <sub>3</sub> / PTFE+CF V: SSiC / PTFE+CF
⑥ 軸承材質 Bearing Material	S: SSiC R: PTFE+CF C: CARBON
⑦ 密封材質 Sealing Material	E: EPDM V: FKM F: FKM+FEP

⑧ 馬力數 Motor Power	015: 1.5 kW (2 hp) 022: 2.2 kW (3 hp) 037: 3.7 kW (5 hp) 055: 5.5 kW (7.5 hp) 075: 7.5 kW (10 hp) 110: 11 kW (15 hp) 150: 15 kW (20 hp) 185: 18.5 kW (25 hp) 220: 22 kW (30 hp) 300: 30 kW (40 hp)
⑨ 馬達型式 Protection Type	0: IP54 1: IP55 2: eG3 安全增防爆 Explosion proof eG3 3: d2G4 耐壓防爆型 Explosion proof d2G4 S: 特殊馬達 Special motor

## 材質構造圖 MATERIAL



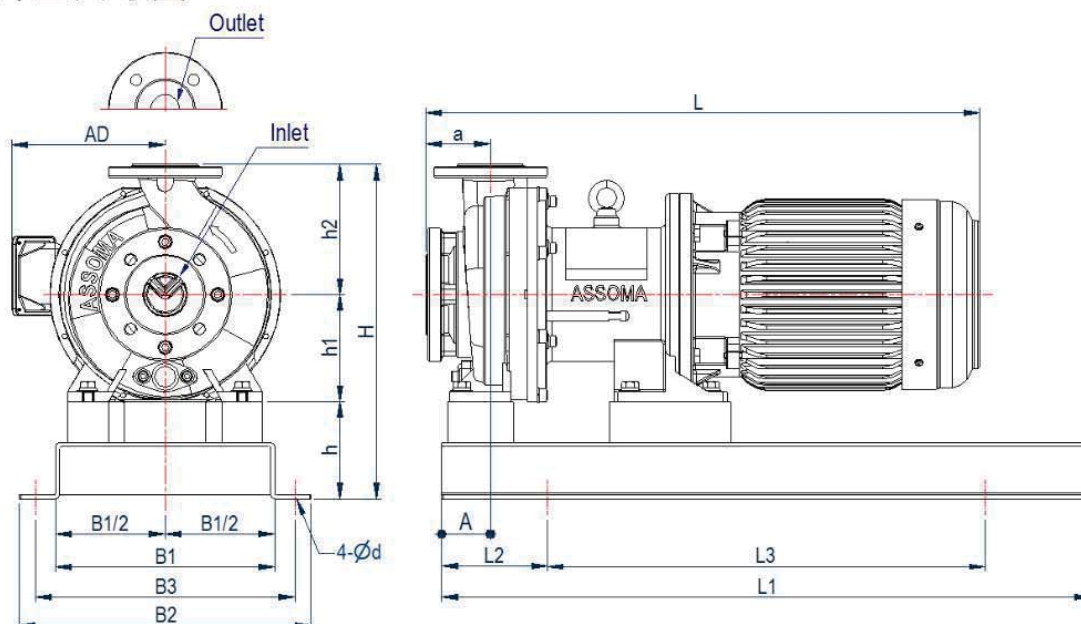
編號 Part code	名稱 Part name		可選用材質 Available Materials
101	前蓋組 Pump casing assembly	前蓋 Pump casing	FCD450, PFA / FCD450, ETFE**
		前止推環 Front thrust ring	995 Al <sub>2</sub> O <sub>3</sub> / SSiC
161	後蓋護體組 Rear casing with cover		PFA, CARBON FRP
161.1	後蓋背板 Backup plate		FCD450
181	托架 Bracket		FC
211	軸心 Shaft		995 Al <sub>2</sub> O <sub>3</sub> / SSiC
230	葉輪磨損環組 Impeller wear ring assembly	葉輪組 Impeller	PFA, Sm-Co
		前磨損環 Front wear ring	SSiC / PTFE+CF** / CARBON***
310	軸承 Bearing		SSiC / PTFE+CF** / CARBON***
314	後止推環 Rear thrust ring		SSiC / PTFE+CF**
582	排洩蓋 Drain cap		FC
847	外輪 Drive magnet		Nd-Fe-B
890	底座 Base plate		SUS304
RG###	O 形環 O-ring *		EPDM / FKM / FKM+FEP

\* AFLAS 或全氟化橡膠密封件可依客戶需求提供  
AFLAS & FFKM are available by request

\*\* 使用於操作溫度低於 90°C  
Maximum allowable temperature for material is 90°C

\*\*\* 不適用於 AME-HT 機型或者操作溫度高於 90°C  
Not suitable for AME-HT model and for operating temperatures above 90°C

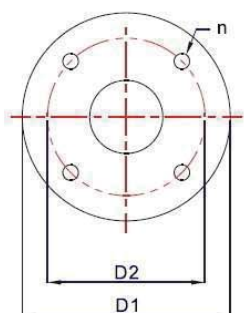
## 外型尺寸圖 AME-BP/BT/CP/CT/EP DIMENSIONS



項目 Item	尺寸 Dimension (mm)															法蘭 Flange (mm)		馬達輸出 功率 (kW)	馬達 規格
	A	a	AD*	B1	B2	B3	d	H	h	h1	h2	L*	L1**	L2	L3**	Inlet***	Outlet***	Motor Output	Frame Size
AME-BP	60	80	143	270	360	320	18	412	120	132	160	551 576 649	800 (550)	130	540 (290)	40A	25A	1.5 kW	90S/L
			166													2.2 kW	112M		
168															5.5 kW	132S			
168															7.5 kW				
143															1.5 kW	90S/L			
166															2.2 kW	112M			
168															5.5 kW	132S			
168															5.5 kW	132S			
168															7.5 kW				
168															7.5 kW				

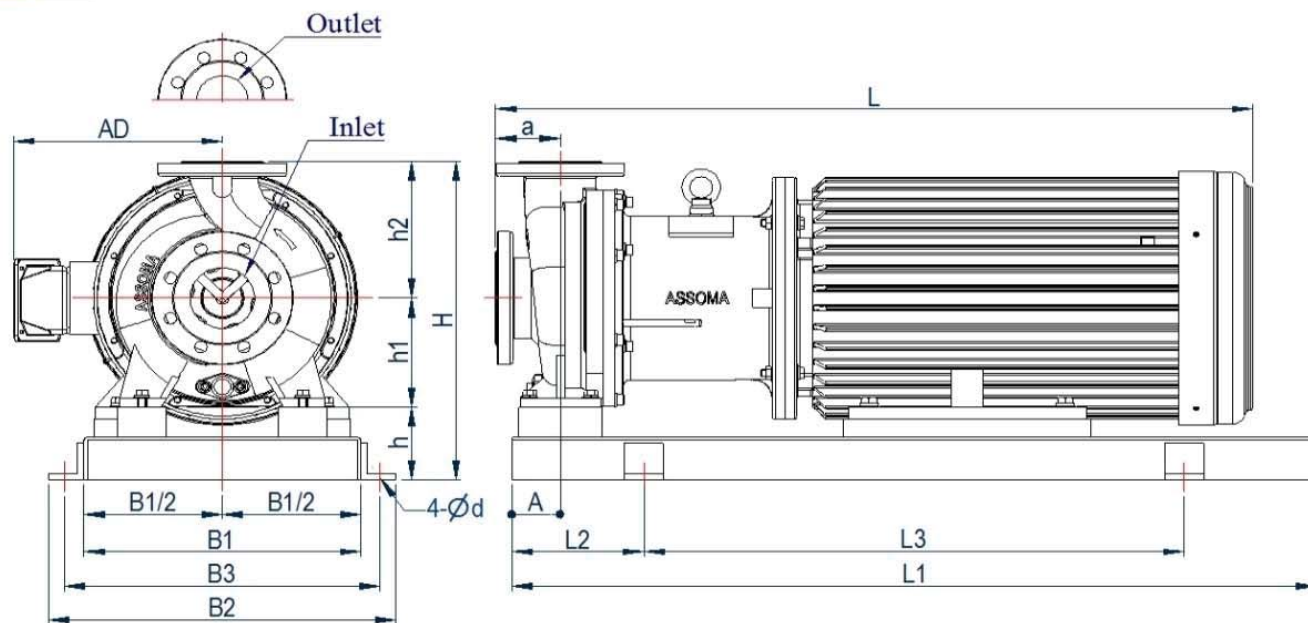
### 備註Note:

- \* 尺寸依照馬達廠牌，安裝方式及馬力數之不同而有區別。  
Dimensions will vary depending on the brand, type and power output of motor.
- \*\* 依客戶需求客提供小尺寸底座。  
A compact base plate is available for customers' request.
- \*\*\* 泵浦出入口法蘭規格可依客戶不同規格需求（ISO、ANSI、JIS）承製。  
AME-CP/CT出口法蘭規格有32A及40A供客戶選用。  
Flange are available with ISO, ANSI, and JIS standards upon customers' request.  
Outlet flange of AME-CP/CT provides 32A and 40A for customers' request.



DN	Standard	n	D2	D1
25A	ISO	4-M12	85	125
	JIS	4-M16	90	
	ANSI	4-M12	3 1/8"	
32A	ISO	4-M16	100	140(5 1/2")
	JIS			
40A	ISO	4-M16	110	
	JIS		105	
	ANSI		3 7/8"	
50A	ISO	4-M16	125	165(6 1/2")
	JIS		120	
	ANSI		4 3/4"	

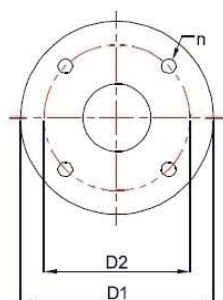
## 外型尺寸圖 AME-FP/HT DIMENSIONS



項目 Item	尺寸 Dimension (mm)															法蘭 Flange (mm)		馬達輸出 功率 (kW)	馬達規格
形式 Model	A	a	AD*	B1	B2	B3	d	H	h	h1	h2	L*	L1	L2	L3	Inlet**	Outlet**	Motor output	Frame Size
AME-FP	60	100	225	270	360	320	23	460	120	160	180	790	800	130	540	80A	65A	5.5 kW	132S
			263	300	390	350						915	900	150	600			7.5 kW	
												960						11 kW	
																		15 kW	
AME-HT	75	100	263	340	450	400	23	525	120	180	225	947	1000	170	660	100A	80A	11 kW	160M
												991						15 kW	
			305	380	490	440						1011	1120	190	740			18.5 kW	160L
												1049						22 kW	180M
			324	430	540	490						1179	1250	205	840			30 kW	180L
																			200L

## 備註Note:

- \* 尺寸依照馬達廠牌，安裝方式及馬力數之不同而有區別。  
Dimensions will vary depending on the brand, type and power output of motor.
- \*\* 泵浦出入口法蘭規格可依客戶不同規格需求（ISO、ANSI、JIS）承製。  
Flange are available with ISO, ANSI, and JIS standards upon customers' request.
- \*\*\* 若訂購22 kW(含)以上泵浦不含馬達，請註明馬達框號及法蘭記號，以便搭配合適的底座及托架，若未註明，則以標準配備出貨。  
When purchasing pumps without motor for 22 kW and above, please specify the motor frame size and flange size so that the proper bracket and base can be provided. If frame size and flange sizes are not provided, we shall provide our standard configuration.
- ASSOMA標準配備standard configuration：  
22 kW馬達框號180M，法蘭記號FF350；30 kW馬達框號200L，法蘭記號FF350。  
22 kW motor frame size 180M, Flange size FF350; 30 kW motor frame size 200L, Flange size FF350



DN	Standard	n	D2	D1
65A	ISO	4-M16	145	185(7 1/4")
	JIS		140	
	ANSI		5.5"	
80A	ISO	8-M16	160	200(8")
	JIS		150	
	ANSI	4-M16	6"	
100A	ISO	8-M16	180	220(8 1/2")
	JIS		175	
	ANSI		7.5"	

# ASSOMA

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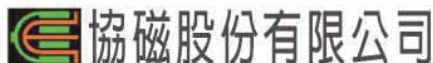
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