

企業簡介 | ABOUT US



歐邦電機創建於2008年，是一家集電機驅動、微特電機、精密減速器的研發、製造、銷售、服務於一體的機電自動化企業。公司擁有江蘇省民營企業、中小企業以及國家高新技術企業證書和發明專利，如電機磁瓦固定結構、行星齒輪減速機的密封結構、內置控制器的無刷電機、燒結致密磁鋼轉子、統一法向模數為標準值的圓柱蝸桿、無刷電機中定子與機殼的固定結構等實用新型專利證書。公司立足於智能化、自動化裝備核心部件製造商和設計方案提供者，致力於實現自動化應用的無限可能，通過團隊自主研發與科研院所、高等院校合作開發的小型減速機、行星減速機、無刷直流電機、太陽能光伏、光電行業專用減速機等，在行業裏處於領先水準。公司產品以其獨特的差異化，及其環保、高效創造綠色動力，成為國內代替進口產品和國外品牌的強勢競爭者，產品廣泛應用於機器人、數控裝備、工作母機、醫療器械、辦公設備、軍工產品和民用自動化等幾十種行業領域，通過實施市場創新，直銷與經銷的經營模式相結合，不僅在上海、北京、天津、江蘇、廣東、湖北、山東等一線及二線城市建立了一百多家行銷網點，而且與世界知名企業有深度合作，如富士康、華碩、瀋陽機床等企業。

公司本著以進口裝配生產，替代進口產品的理念，不斷引進國際先進的生產設備及檢測設備，形成了以日本哈瑪宜、三菱、浜井等齒輪加工設備，及日本牧野、美國哈斯等進口加工中心，以及瑞士海克斯康等先進的檢測設備，同時公司對傳統裝配進行資訊化、智能化升級改造，增強生產基礎，對新工藝和新技術的承載能力，開啟了以線性機器人與關節機器人為主體的智能創新模式。

公司以品質、創新、和諧、共贏為核心價值，努力塑造先進的企業文化，凝聚團隊力量，構建社會、企業、員工利益共同體，加快產業轉型升級和國際化發展步伐，為實現創世界一品牌，建百年智能歐邦，壯大民族工業，創造綠色動力而奮鬥。

OBANG MOTOR WAS ESTABLISHED IN 2008, IS A COLLECTION OF MOTOR DRIVE, MICRO MOTOR, PRECISION GEAR REDUCER, RESEARCH AND DEVELOPMENT, MANUFACTURING, SALES AND SERVICE IN THE INTEGRATION OF MECHANICAL AND ELECTRICAL AUTOMATION ENTERPRISES. COMPANY HAS IN JIANGSU PROVINCE PRIVATE ENTERPRISE, SMALL AND MEDIUM-SIZED ENTERPRISES AND NATIONAL HIGH-TECH ENTERPRISE CERTIFICATE AND PATENT OF INVENTION, SUCH AS MOTOR MAGNETIC TILE STRUCTURE IS FIXED, THE PLANETARY GEAR REDUCER OF SEALING STRUCTURE, BUILT IN CONTROLLER OF BRUSHLESS MOTOR, SINTERED NEODYMIUM IRON PEGGI RIGID ROTOR, UNIFICATION TO MODULUS OF STANDARD VALUE OF CYLINDRICAL WORM, NON BRUSH MOTOR STATOR AND A SHELL FIXED STRUCTURE OF UTILITY MODEL PATENT CERTIFICATE. COMPANY BASED ON THE INTELLIGENT DESIGN OF CORE COMPONENTS, AUTOMATION EQUIPMENT MANUFACTURERS AND PROVIDERS, COMMITTED TO THE INFINITE POSSIBILITY OF AUTOMATION APPLICATION, THROUGH INDEPENDENT RESEARCH AND DEVELOPMENT TEAM TO COOPERATE WITH INSTITUTES, COLLEGES AND UNIVERSITIES OF SCIENCE AND TECHNOLOGY DEVELOPMENT OF SMALL GEAR REDUCER, PLANETARY REDUCER, BRUSHLESS DC MOTOR, SOLAR PHOTOVOLTAIC, PHOTOELECTRIC INDUSTRY DEDICATED REDUCER, ETC. IN THE INDUSTRY IN A LEADING LEVEL. COMPANY'S PRODUCTS WITH ITS UNIQUE DIFFERENTIATION, AND ENVIRONMENTAL PROTECTION, HIGH EFFICIENCY TO CREATE GREEN POWER, BECOME THE DOMESTIC INSTEAD OF IMPORTED PRODUCTS AND FOREIGN BRANDS OF STRONG COMPETITORS. THE PRODUCTS ARE WIDELY USED IN ROBOTS, NUMERICAL CONTROL EQUIPMENT, MACHINE TOOLS, MEDICAL EQUIPMENT, OFFICE EQUIPMENT, MILITARY PRODUCTS AND CIVILIAN DOZENS OF INDUSTRIES, SUCH AS AUTOMATION, THROUGH THE IMPLEMENTATION OF MARKET INNOVATION, COMBINATION OF DIRECT SELLING AND DISTRIBUTION BUSINESS MODEL, NOT ONLY IN SHANGHAI, BEIJING, TIANJIN, JIANGSU, GUANGDONG, HUBEI, SHANDONG AND OTHER FIRST-LINE AND SECOND-LINE CITIES SET UP MORE THAN ONE HUNDRED MARKETING NETWORK, AND HAVE A DEEP COOPERATION WITH WORLD FAMOUS ENTERPRISES, SUCH AS FOXCONN, ASUS, SHENYANG MACHINE TOOL ENTERPRISES. COMPANY IN LINE WITH TO THE IMPORT ASSEMBLY PRODUCTION, THE IDEA OF REPLACING THE IMPORT PRODUCTS, AND CONSTANTLY THE INTRODUCTION OF INTERNATIONAL ADVANCED PRODUCTION SET.

COMPANY WITH INNOVATION, EXCELLENCE, HARMONY AND WIN-WIN FOR THE CORE VALUES, TO BUILD ADVANCED ENTERPRISE CULTURE, CONDENSES THE TEAM STRENGTH, BUILDING SOCIETY, ENTERPRISE AND EMPLOYEE BENEFIT COMMUNITY, TO SPEED UP THE PACE OF INDUSTRIAL TRANSFORMATION AND UPGRADING AND INTERNATIONAL DEVELOPMENT, IN ORDER TO ACHIEVE THE WORLD FIRST-CLASS BRAND, BUILDING INTELLIGENT EUROPEAN NATIONS IN ONE HUNDRED, NATIONAL INDUSTRY, AND STRIVE TO CREATE GREEN POWER.

INDEX 索引

歐邦電機 OPG

一個值得你永遠信任的品牌電機

一. 直流電機型號編碼規則 DC MOTOR MODEL ENCODING RULES

二. 尺寸表 DIMENSIONS

<A> 直流電動機 DC MOTOR

ZYT038R	-----01
ZYT045R	-----02
ZYT05R	-----03
ZYT05F-2GN	-----04
ZYT06R	-----05
ZYT06F-2GN	-----06
ZYT06F-3GN	-----07
ZYT06F-4GN	-----08
ZYT07F-3GN	-----09
ZYT07F-4GN	-----10
ZYT08F-5GN (5GU)	-----11
ZYT08F-4GN	-----12
ZYT09F-6GN	-----13
ZYT09F-5GN	-----14
ZYT114F-114	-----15
ZYT114-140	-----16
ZYT130	-----17

 直流無刷電動機 BRUSHLESS DC MOTOR

BLDC06F-2GN	-----19
BLDC06F-3GN	-----20
BLDC06F-4GN	-----21
BLDC06R (外置) (OUTER)	-----22
BLDC06F-2GN (外置) (OUTER)	-----23
BLDC06F-3GN (外置) (OUTER)	-----24
BLDC06F-4GN (外置) (OUTER)	-----25
BLDC08F-5GN (5GU)	-----26
BLDC08F-4GN	-----27
BLDC09F-5GN (5GU)	-----28
BLDC09F-6GN (6GU)	-----29

<C> 直流無刷驅動器 BRUSHLESS DC DRIVES

BLDH750A	-----31-33
BLDH350A	-----34-36
BLD-70	-----37-38
BLD-120A	-----39-41
BLD-300B	-----42-44
BLD-750	-----45-47

<E> RV系列蝸輪蝸桿減速機

RV SERIES WORM GEAR AND WORM REDUCER

-----52-53

<D> 行星配直流 PLANETARY DISTRIBUTION

-----49-51



歐邦電機



電機組裝生產綫



齒輪測量中心



數控插齒機



全自動嵌綫車間



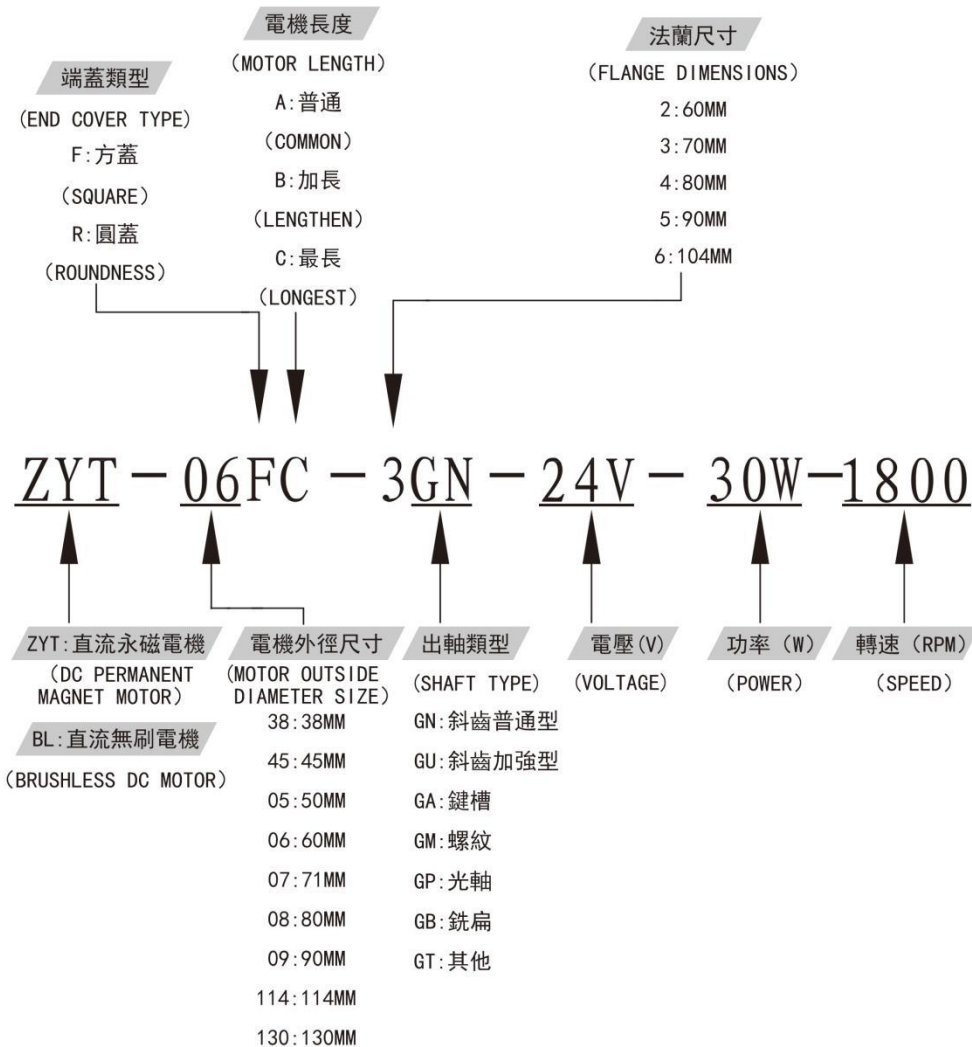
數控車間



直流電機車間

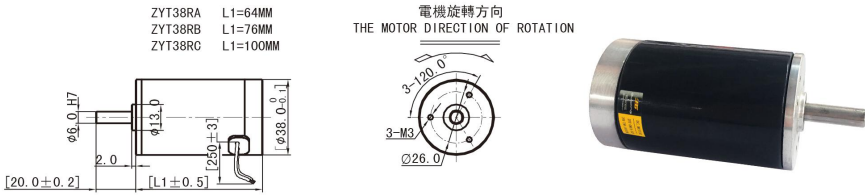
專業
專注
PROFESSIONAL FOCUS

直流電機型號編碼規則
DC MOTOR MODEL ENCODING RULES



備註: 原來10電機為08FB
原來11電機為08FC
原來12電機為09系列

▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

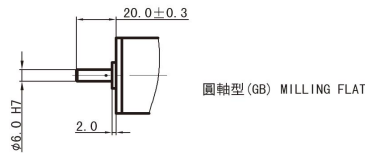
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTORWEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
ZYT38RA-24-2000	24	2000	0.11MAX	1500	0.3	0.35	0.8	2000	0.27
ZYT38RA-24-3000	24	3000	0.13MAX	2300	0.42	0.35	1.3	2000	0.27
ZYT38RA-24-4000	24	4000	0.23MAX	3000	0.59	0.35	2.2	2000	0.27
ZYT38RA-12-2000	12	2000	0.15MAX	1500	0.42	0.35	1.1	2000	0.27
ZYT38RA-12-3000	12	3000	0.22MAX	2300	0.85	0.35	2.3	2000	0.27
ZYT38RA-12-4000	12	4000	0.4MAX	3000	1.5	0.35	4.0	2000	0.27

可根據客戶要求定做電機電壓3V-220V電機，電機轉速1000-3000RPM

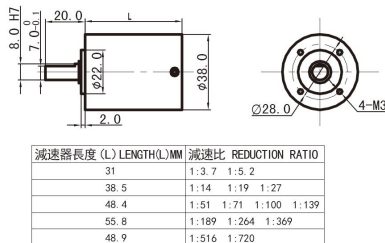
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



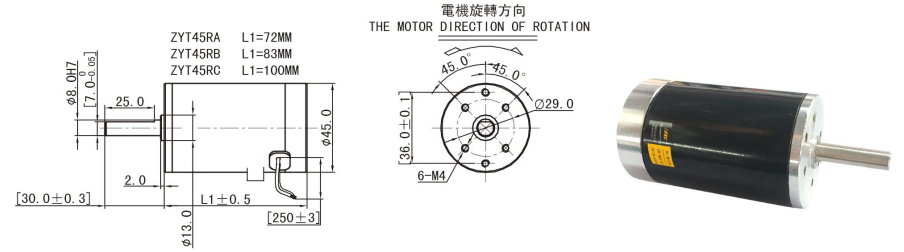
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

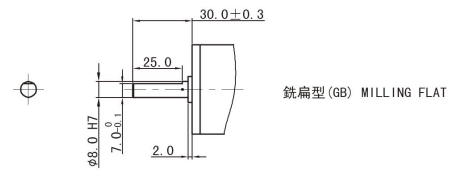
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTORWEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
ZYT45RA-24-2000	24	2000	0.13MAX	1500	0.4	0.8	1.2	2000	0.38
ZYT45RA-24-3000	24	3000	0.3MAX	2300	0.8	0.8	2.4	2000	0.38
ZYT45RA-24-4000	24	4000	0.45MAX	3000	1.6	0.8	4.9	2000	0.38
ZYT45RA-12-2000	12	2000	0.25MAX	1500	0.8	0.8	2.4	2000	0.38
ZYT45RA-12-3000	12	3000	0.32MAX	2300	1.45	0.8	4.8	2000	0.38
ZYT45RB-12-4000	12	4000	0.7MAX	3000	2.52	0.8	8.4	2000	0.38

可根據客戶要求定做電機電壓3V-220V電機，電機轉速1000-3000RPM

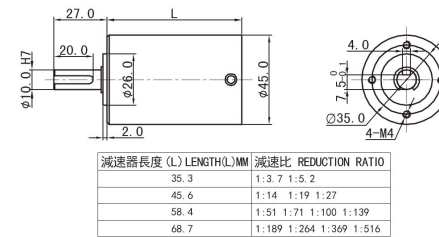
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



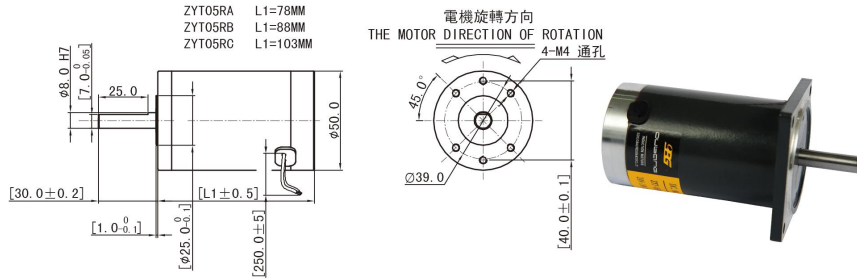
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

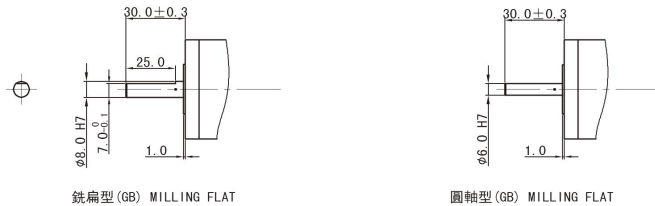
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
ZYT05RA-24-1800	24	12	1800	0.15MAX	1500	0.55	0.073	2000	0.55
ZYT05RA-24-3000	24	25	3000	0.25MAX	2500	1.12	0.094	2000	0.55
ZYT05RA-12-1800	12	10	1800	0.3MAX	1500	0.75	0.063	2000	0.55
ZYT05RA-12-3000	12	30	3000	0.6MAX	2500	3.2	0.12	2000	0.55
ZYT05RB-24-1800	24	15	1800	0.2MAX	1400	0.8	0.103	2000	0.65
ZYT05RB-24-3000	24	25	3000	0.35MAX	2500	1.38	0.101	2000	0.65
ZYT05RB-12-1800	12	15	1800	0.35MAX	1400	1.72	0.107	2000	0.65
ZYT05RB-12-3000	12	35	3000	0.6MAX	2500	3.5	0.131	2000	0.65

可根據客戶要求定做電機電壓3V-220V電機，電機轉速1000-3000RPM

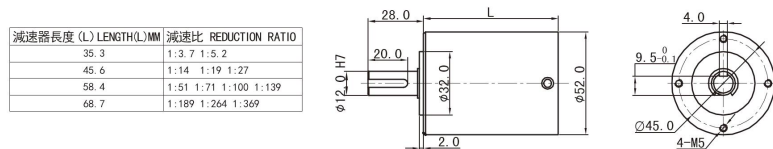
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



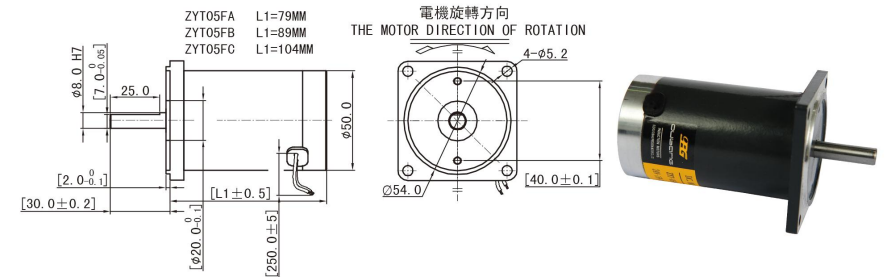
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

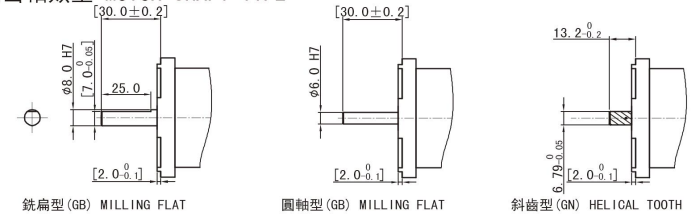
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
ZYT05FA-24-1800	24	12	1800	0.15MAX	1500	0.55	0.073	2000	0.55
ZYT05FA-24-3000	24	25	3000	0.25MAX	2500	1.12	0.094	2000	0.55
ZYT05FA-12-1800	12	10	1800	0.3MAX	1500	0.75	0.063	2000	0.55
ZYT05FA-12-3000	12	30	3000	0.6MAX	2500	3.2	0.12	2000	0.55
ZYT05FB-24-1800	24	15	1800	0.2MAX	1400	0.8	0.103	2000	0.65
ZYT05FB-24-3000	24	25	3000	0.35MAX	2500	1.38	0.101	2000	0.65
ZYT05FB-12-1800	12	15	1800	0.35MAX	1400	1.72	0.107	2000	0.65
ZYT05FB-12-3000	12	35	3000	0.6MAX	2500	3.5	0.131	2000	0.65

可根據客戶要求定做電機電壓3V-220V電機，電機轉速1000-3000RPM

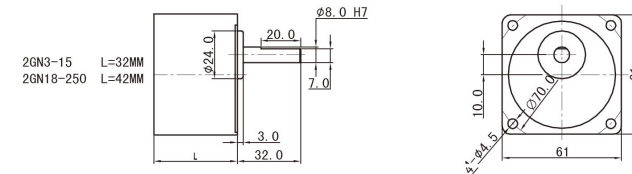
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



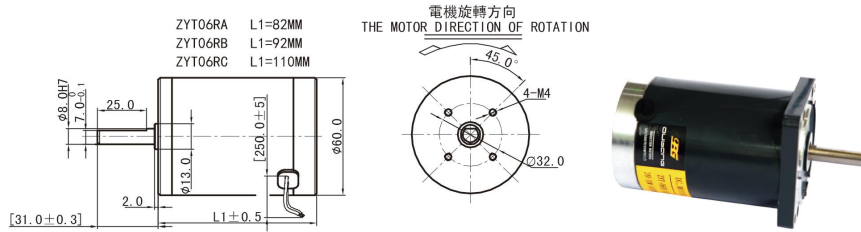
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING

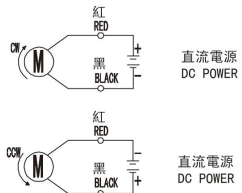


▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

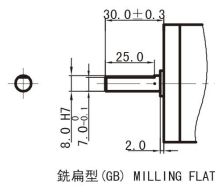
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數 NO-LOAD PARAMETERS			負載參數 LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速 SPEED (R/MIN)	電流 CURRENT (A)	力矩 TORQUE (N.M)	轉速 SPEED (R/MIN)	電流 CURRENT (A)	力矩 TORQUE (N.M)		
ZYT06RA-24-1800	24	20	1800	0.2MAX	1350	1.13	0.144	2000	0.74	
ZYT06RA-24-3000	24	30	3000	0.35MAX	2500	1.76	0.116	2000	0.74	
ZYT06RA-12-1800	12	20	1800	0.3MAX	1400	2.2	0.135	2000	0.74	
ZYT06RA-12-3000	12	40	3000	0.6MAX	2500	4.6	0.152	2000	0.74	
ZYT06RB-24-1800	24	25	1800	0.2MAX	1500	1.38	0.156	2000	0.86	
ZYT06RB-24-3000	24	55	3000	0.35MAX	2500	3.25	0.22	2000	0.86	
ZYT06RB-12-1800	12	25	1800	0.45MAX	1500	3.0	0.16	2000	0.86	
ZYT06RB-12-3000	12	55	3000	0.85MAX	2500	6.8	0.218	2000	0.86	
ZYT06RC-24-1800	24	60	1800	0.25MAX	1500	3.67	0.36	2000	1.11	
ZYT06RC-24-3000	24	80	3000	0.35MAX	2500	4.44	0.34	2000	1.11	
ZYT06RC-12-1800	12	50	1800	0.4MAX	1500	6.15	0.32	2000	1.11	
ZYT06RC-12-3000	12	90	3000	0.75MAX	2500	10.4	0.34	2000	1.11	

可根據客戶要求定做電機電壓3V~220V電機，電機轉速1000~3000RPM

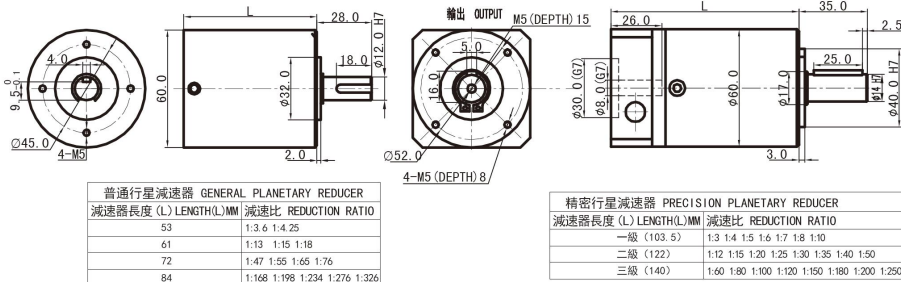
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



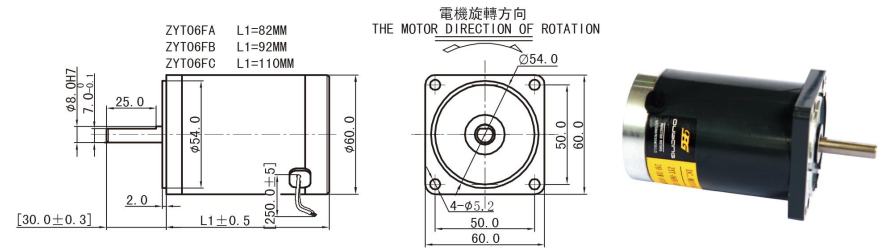
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速機 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數 NO-LOAD PARAMETERS		負載參數 LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速 SPEED (R/MIN)	電流 CURRENT (A)	轉速 SPEED (R/MIN)	電流 CURRENT (A)	力矩 TORQUE (N.M)		
ZYT06FA-24-1800	24	20	1800	0.2MAX	1350	1.13	0.144	2000	0.74
ZYT06FA-24-3000	24	30	3000	0.35MAX	2500	1.76	0.116	2000	0.74
ZYT06FA-12-1800	12	20	1800	0.3MAX	1400	2.2	0.135	2000	0.74
ZYT06FA-12-3000	12	40	3000	0.6MAX	2500	4.6	0.152	2000	0.74
ZYT06FB-24-1800	24	25	1800	0.2MAX	1500	1.38	0.156	2000	0.86
ZYT06FB-24-3000	24	55	3000	0.35MAX	2500	3.25	0.22	2000	0.86
ZYT06FB-12-1800	12	25	1800	0.45MAX	1500	3.0	0.16	2000	0.86
ZYT06FB-12-3000	12	55	3000	0.85MAX	2500	6.8	0.218	2000	0.86
ZYT06FC-24-1800	24	60	1800	0.25MAX	1500	3.67	0.36	2000	1.11
ZYT06FC-24-3000	24	80	3000	0.35MAX	2500	4.44	0.34	2000	1.11
ZYT06FC-12-1800	12	50	1800	0.4MAX	1500	6.15	0.32	2000	1.11
ZYT06FC-12-3000	12	90	3000	0.75MAX	2500	10.4	0.34	2000	1.11

可根據客戶要求定做電機電壓3V~220V電機，電機轉速1000~3000RPM

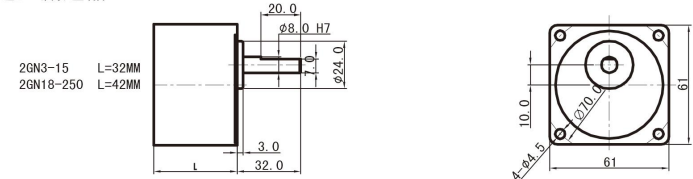
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



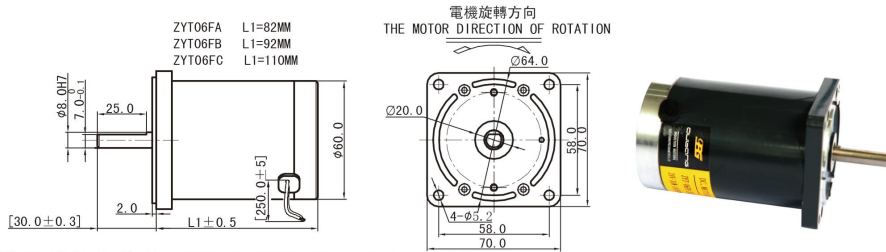
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

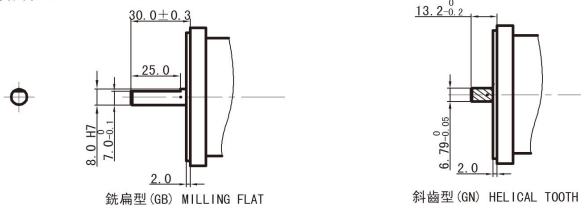
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTORWEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
ZYT06FA-24-1800	24	20	1800	0.2MAX	1350	1.13	0.144	2000	0.74
ZYT06FA-24-3000	24	30	3000	0.35MAX	2500	1.76	0.116	2000	0.74
ZYT06FA-12-1800	12	20	1800	0.3MAX	1400	2.2	0.135	2000	0.74
ZYT06FA-12-3000	12	40	3000	0.6MAX	2500	4.6	0.152	2000	0.74
ZYT06FB-24-1800	24	25	1800	0.2MAX	1500	1.38	0.156	2000	0.86
ZYT06FB-24-3000	24	55	3000	0.35MAX	2500	3.25	0.22	2000	0.86
ZYT06FB-12-1800	12	25	1800	0.45MAX	1500	3.0	0.16	2000	0.86
ZYT06FB-12-3000	12	55	3000	0.85MAX	2500	6.8	0.218	2000	0.86
ZYT06FC-24-1800	24	60	1800	0.25MAX	1500	3.67	0.36	2000	1.11
ZYT06FC-24-3000	24	80	3000	0.35MAX	2500	4.44	0.34	2000	1.11
ZYT06FC-12-1800	12	50	1800	0.4MAX	1500	6.15	0.32	2000	1.11
ZYT06FC-12-3000	12	90	3000	0.75MAX	2500	10.4	0.34	2000	1.11

可根據客戶要求定做電機電壓3V-220V電機，電機轉速1000-3000RPM

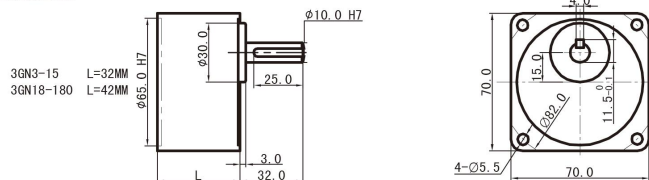
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



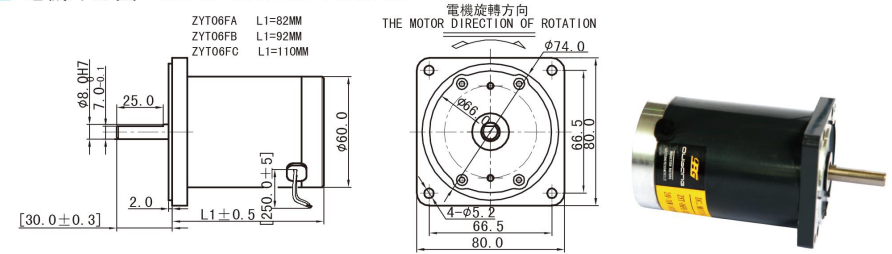
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

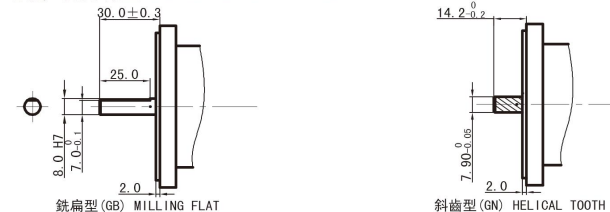
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTORWEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
ZYT06FA-24-1800	24	20	1800	0.2MAX	1350	1.13	0.144	2000	0.74
ZYT06FA-24-3000	24	30	3000	0.35MAX	2500	1.76	0.116	2000	0.74
ZYT06FA-12-1800	12	20	1800	0.3MAX	1400	2.2	0.135	2000	0.74
ZYT06FA-12-3000	12	40	3000	0.6MAX	2500	4.6	0.152	2000	0.74
ZYT06FB-24-1800	24	25	1800	0.2MAX	1500	1.38	0.156	2000	0.86
ZYT06FB-24-3000	24	55	3000	0.35MAX	2500	3.25	0.22	2000	0.86
ZYT06FB-12-1800	12	25	1800	0.45MAX	1500	3.0	0.16	2000	0.86
ZYT06FB-12-3000	12	55	3000	0.85MAX	2500	6.8	0.218	2000	0.86
ZYT06FC-24-1800	24	60	1800	0.25MAX	1500	3.67	0.36	2000	1.11
ZYT06FC-24-3000	24	80	3000	0.35MAX	2500	4.44	0.34	2000	1.11
ZYT06FC-12-1800	12	50	1800	0.4MAX	1500	6.15	0.32	2000	1.11
ZYT06FC-12-3000	12	90	3000	0.75MAX	2500	10.4	0.34	2000	1.11

可根據客戶要求定做電機電壓3V-220V電機，電機轉速1000-3000RPM

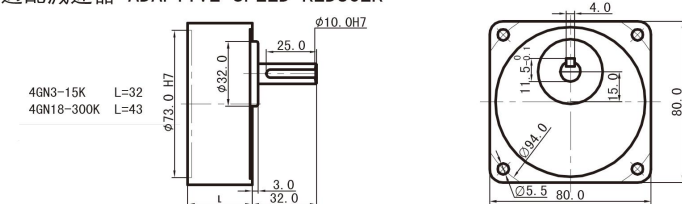
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



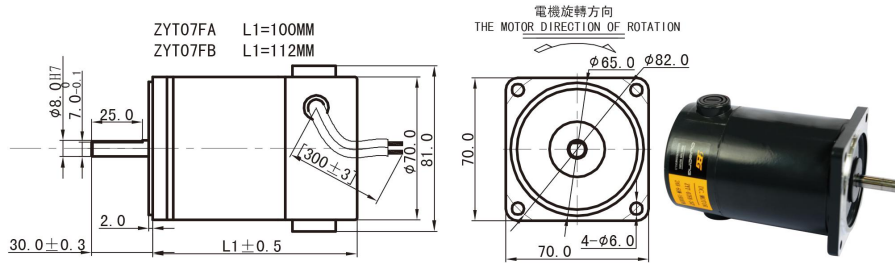
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



電機外形圖 MOTOR OUTLINE DRAWING



電機性能參數 MOTOR PERFORMANCE PARAMETERS

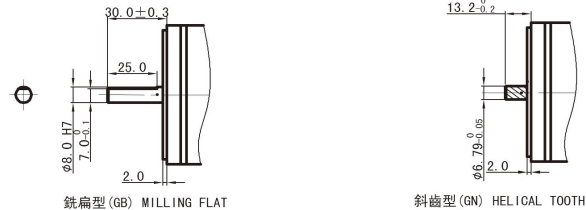
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數 NO-LOAD PARAMETERS		負載參數 LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速 SPEED (R/MIN)	電流 CURRENT (A)	轉速 SPEED (R/MIN)	電流 CURRENT (A)	力矩 TORQUE (N.M)		
ZYT07FA-24-1800	24	30	1800	0.25MAX	1500	1.81	0.193	2000	1.11
ZYT07FA-24-3000	24	80	3000	0.5MAX	2500	4.62	0.281	2000	1.11
ZYT07FA-12-1800	12	35	1800	0.5MAX	1500	4.16	0.377	2000	1.11
ZYT07FA-12-3000	12	80	3000	0.9MAX	2500	8.96	0.305	2000	1.11
ZYT07FB-24-1800	24	60	1800	0.35MAX	1500	3.6	0.38	2000	1.31
ZYT07FB-24-3000	24	120	3000	0.6MAX	2650	4.2	0.44	2000	1.31
ZYT07FB-12-1800	12	70	1800	0.6MAX	1500	8.7	0.45	2000	1.31
ZYT07FB-12-3000	12	80	3000	1.0MAX	2500	9	0.3	2000	1.31

可根據客戶要求定做電機電壓3V-220V電機，電機轉速1000-3000RPM

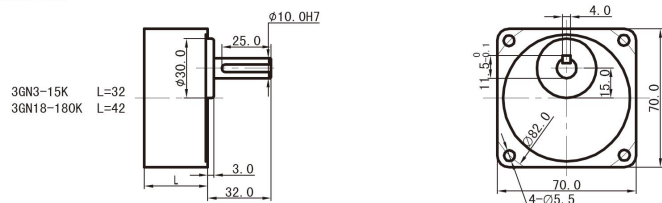
電機接線圖 WIRING DIAGRAM OF MOTOR



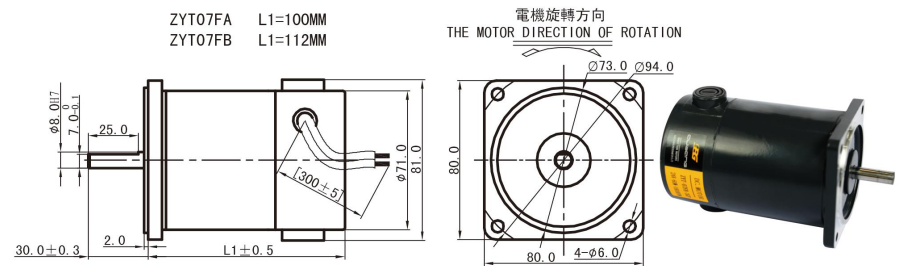
電機出軸類型 MOTOR SHAFT TYPE



適配減速器 ADAPTIVE SPEED REDUCER



電機外形圖 MOTOR OUTLINE DRAWING



電機性能參數 MOTOR PERFORMANCE PARAMETERS

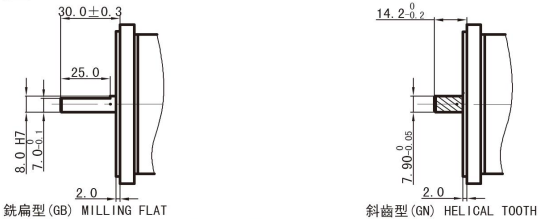
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數 NO-LOAD PARAMETERS		負載參數 LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速 SPEED (R/MIN)	電流 CURRENT (A)	轉速 SPEED (R/MIN)	電流 CURRENT (A)	力矩 TORQUE (N.M)		
ZYT07FA-24-1800	24	30	1800	0.25MAX	1500	1.81	0.193	2000	1.11
ZYT07FA-24-3000	24	80	3000	0.5MAX	2500	4.62	0.281	2000	1.11
ZYT07FA-12-1800	12	35	1800	0.5MAX	1500	4.16	0.377	2000	1.11
ZYT07FA-12-3000	12	80	3000	0.9MAX	2500	8.96	0.305	2000	1.11
ZYT07FB-24-1800	24	60	1800	0.35MAX	1500	3.6	0.38	2000	1.31
ZYT07FB-24-3000	24	120	3000	0.6MAX	2650	4.2	0.44	2000	1.31
ZYT07FB-12-1800	12	70	1800	0.6MAX	1500	8.7	0.45	2000	1.31
ZYT07FB-12-3000	12	80	3000	1.0MAX	2500	9	0.3	2000	1.31

可根據客戶要求定做電機電壓3V-220V電機，電機轉速1000-3000RPM

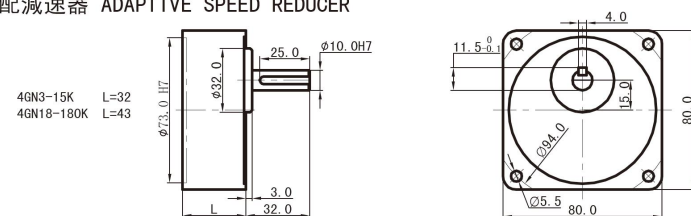
電機接線圖 WIRING DIAGRAM OF MOTOR



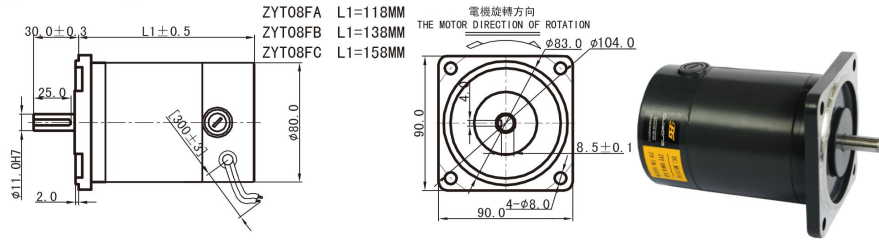
電機出軸類型 MOTOR SHAFT TYPE



適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

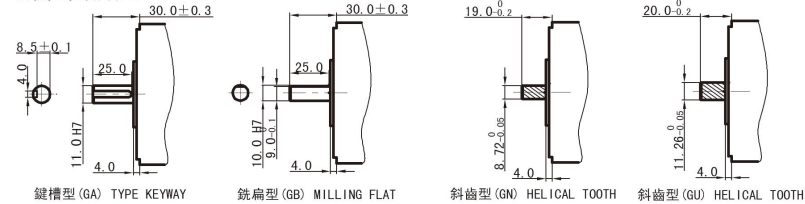
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
ZYT08FA-24-1800	24	70	1800	0.4MAX	1500	4.2	0.45	2000	1.87
ZYT08FA-24-3000	24	100	3000	0.7MAX	2500	6	0.4	2000	1.87
ZYT08FA-12-1800	12	80	1800	0.8MAX	1500	9.0	0.47	2000	1.87
ZYT08FA-12-3000	12	90	3000	1.4MAX	2500	11	0.35	2000	1.87
ZYT08FB-24-1800	24	90	1800	0.4MAX	1500	4.9	0.58	2000	2.26
ZYT08FB-24-3000	24	200	3000	0.8MAX	2500	11.5	0.8	2000	2.26
ZYT08FB-12-1800	12	95	2000	0.9MAX	1500	11.5	0.62	2000	2.26
ZYT08FB-12-3000	12	110	3000	1.5MAX	2500	12.8	0.45	2000	2.26
ZYT08FC-24-1800	24	150	1800	0.55MAX	1500	8.7	1.0	2000	2.82
ZYT08FC-24-3000	24	400	3000	1.0MAX	2500	23.8	1.58	2000	2.82
ZYT08FC-12-1800	12	100	1800	1.0MAX	1500	11	0.65	2000	2.82
ZYT08FC-12-3000	12	300	3000	2.0MAX	2500	37	1.22	2000	2.82

可根據客戶要求定做電機電壓3V-220V電壓, 電壓轉速1000-3000RPM

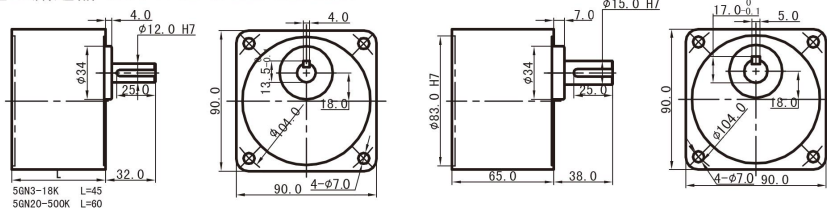
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



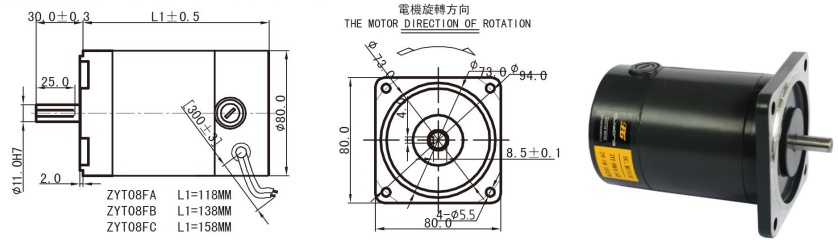
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING

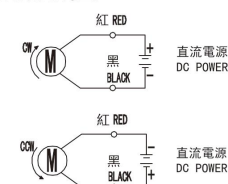


▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

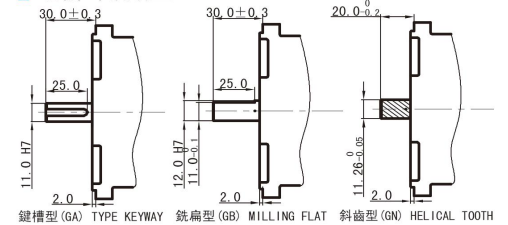
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
ZYT08FA-24-1800	24	70	1800	0.4MAX	1500	4.2	0.45	2000	1.87
ZYT08FA-24-3000	24	100	3000	0.7MAX	2500	6	0.4	2000	1.87
ZYT08FA-12-1800	12	80	1800	0.8MAX	1500	9.0	0.47	2000	1.87
ZYT08FA-12-3000	12	90	3000	1.4MAX	2500	11	0.35	2000	1.87
ZYT08FB-24-1800	24	90	1800	0.4MAX	1500	4.9	0.58	2000	2.26
ZYT08FB-24-3000	24	200	3000	0.8MAX	2500	11.5	0.8	2000	2.26
ZYT08FB-12-1800	12	95	2000	0.9MAX	1500	11.5	0.62	2000	2.26
ZYT08FB-12-3000	12	110	3000	1.5MAX	2500	12.8	0.45	2000	2.26
ZYT08FC-24-1800	24	150	1800	0.55MAX	1500	8.7	1.0	2000	2.82
ZYT08FC-24-3000	24	400	3000	1.0MAX	2500	23.8	1.58	2000	2.82
ZYT08FC-12-1800	12	100	1800	1.0MAX	1500	11	0.65	2000	2.82
ZYT08FC-12-3000	12	300	3000	2.0MAX	2500	37	1.22	2000	2.82

可根據客戶要求定做電機電壓3V-220V電壓, 電壓轉速1000-3000RPM

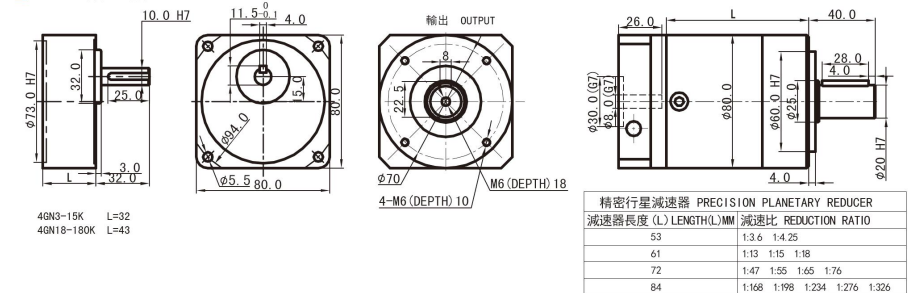
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



▶ 電機出軸類型 MOTOR SHAFT TYPE

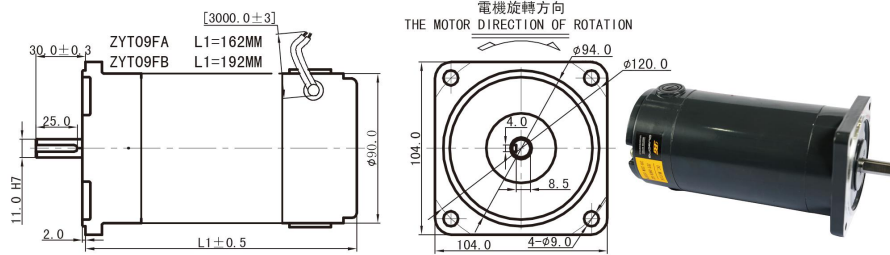


▶ 適配減速器 ADAPTIVE SPEED REDUCER



精密行星減速器 PRECISION PLANETARY REDUCER	
減速器長度 (L) LENGTH (L) MM	減速比 REDUCTION RATIO
53	1:3.6 1:4.25
61	1:1.3 1:1.5 1:1.8
72	1:4.7 1:5.5 1:6.5 1:7.6
84	1:1.68 1:1.98 1:2.34 1:2.76 1:3.26

▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

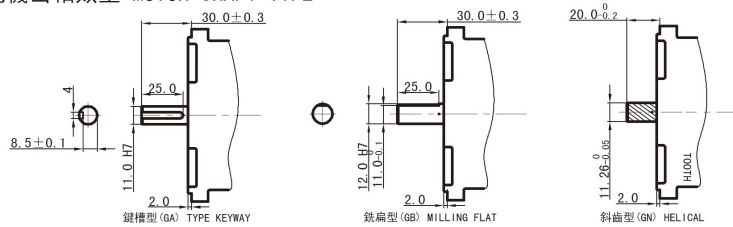
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTORWEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
ZYT09FA-24-1800	24	150	1800	0.5MAX	1500	8.5	0.97	2000	3.14
ZYT09FA-24-3000	24	350	3000	1.2MAX	2500	22	1.4	2000	3.14
ZYT09FA-12-1800	12	150	1800	1.2MAX	1500	20	1.2	2000	3.14
ZYT09FA-12-3000	12	300	3000	1.8MAX	2500	35	1.2	2000	3.14
ZYT09FB-24-1800	24	200	1800	0.55MAX	1500	10.5	1.25	2000	4.2
ZYT09FB-24-3000	24	550	3000	1.0MAX	2600	30	2.0	2000	4.2
ZYT09FB-12-1800	12	200	2000	1.2MAX	1500	23	1.25	2000	4.2

可根據客戶要求定做電機電壓3V~220V電機，電機轉速1000~3000RPM

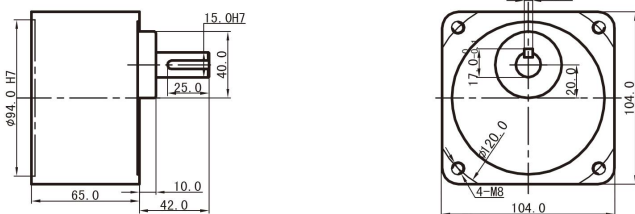
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



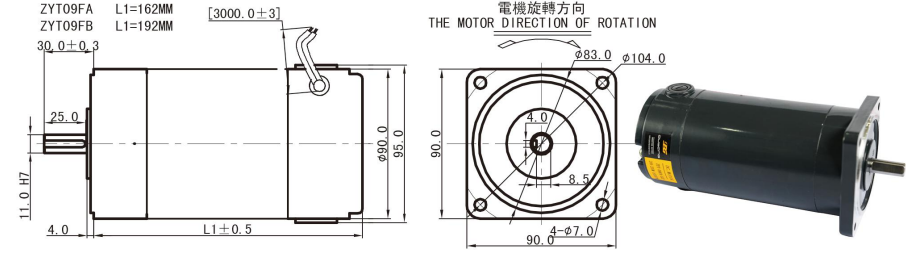
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING

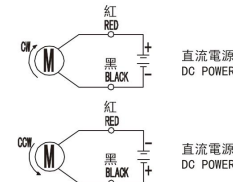


▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

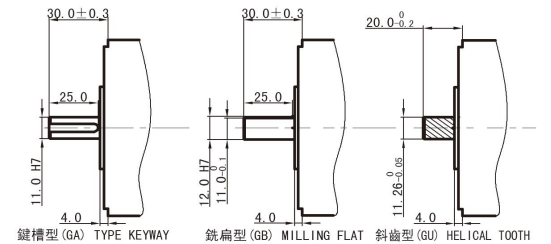
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTORWEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
ZYT09FA-24-1800	24	150	1800	0.5MAX	1500	8.5	0.97	2000	3.14
ZYT09FA-24-3000	24	350	3000	1.2MAX	2500	22	1.4	2000	3.14
ZYT09FA-12-1800	12	150	1800	1.2MAX	1500	20	1.2	2000	3.14
ZYT09FA-12-3000	12	300	3000	1.8MAX	2500	35	1.2	2000	3.14
ZYT09FB-24-1800	24	200	1800	0.55MAX	1500	10.5	1.25	2000	4.2
ZYT09FB-24-3000	24	550	3000	1.0MAX	2600	30	2.0	2000	4.2
ZYT09FB-12-1800	12	200	2000	1.2MAX	1500	23	1.25	2000	4.2

可根據客戶要求定做電機電壓3V~220V電機，電機轉速1000~3000RPM

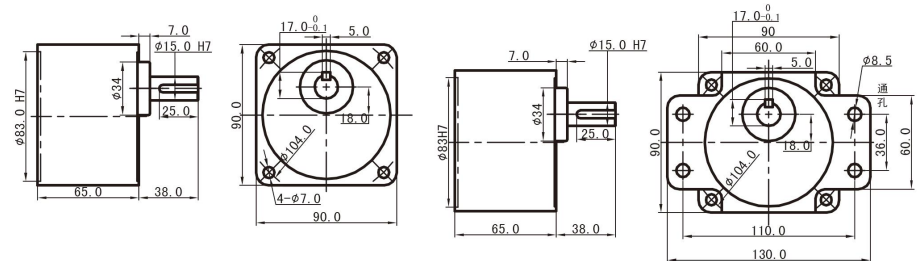
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



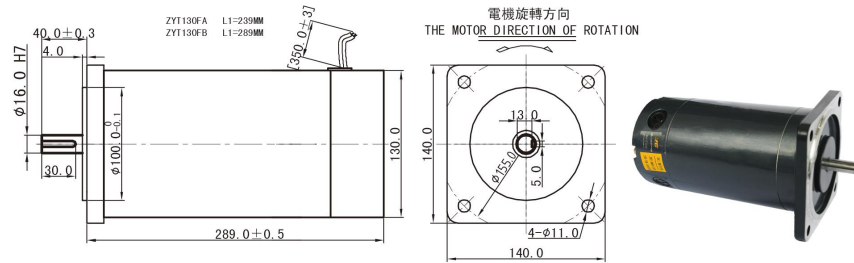
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

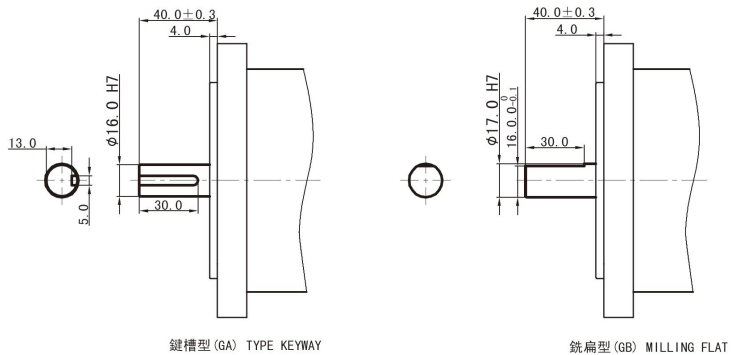
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTORWEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
ZYT130FA-24-1800	24	500	1800	1.5MAX	1500	25	2.65	2000	6.82
ZYT130FA-90-3000	90	950	3000	1.15MAX	2500	17	3.1	2000	6.82
ZYT130FA-110-3000	110	700	3000	0.9MAX	2500	9.5	2.86	2000	6.82
ZYT130FA-220-1800	220	450	1800	0.4MAX	1500	2.5	2.65	2000	6.82
ZYT130FA-24-1800	24	1200	1800	2.1MAX	1500	65	6.7	2000	8.2
ZYT130FA-90-2200	90	1200	2200	1.05MAX	2050	18.5	5.7	2000	8.2
ZYT130FB-220-1800	220	1100	1500	0.45MAX	1500	7	7	2000	8.2
ZYT130FB-200-3000	220	1200	3000	0.55MAX	2500	3.82	7	2000	8.2

可根據客戶要求定做電機電壓12V-220V電機, 電機轉速1000-3000RPM

▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



▶ 電機出軸類型 MOTOR SHAFT TYPE



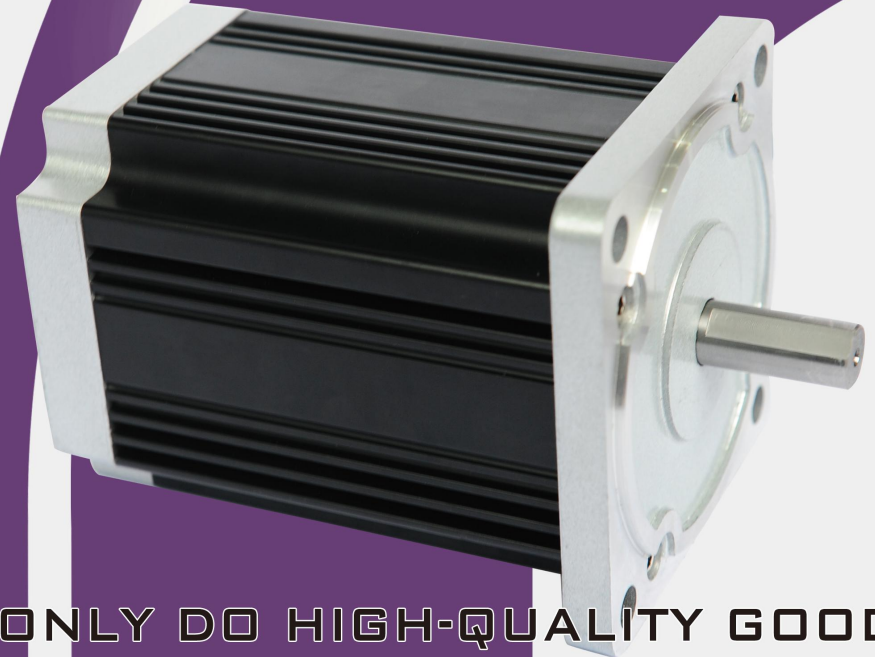
鍵槽型 (GA) TYPE KEYWAY

銑扁型 (GB) MILLING FLAT



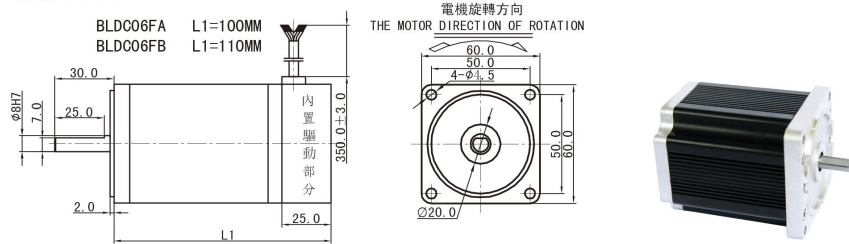
歐邦電機
祇做精品

OPG MOTOR



ONLY DO HIGH-QUALITY GOODS

▶ 電機外形圖 MOTOR OUTLINE DRAWING

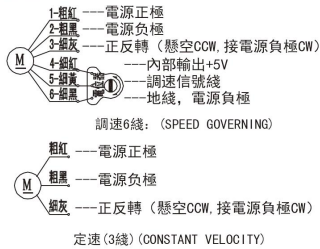


▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

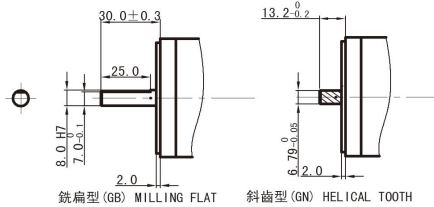
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTORWEIGHT (KG)
			轉速SPEED (R./MIN)	電流CURRENT (A)	轉速SPEED (R./MIN)	電流CURRENT (A)	力矩TORQUE (N. M)		
BLDC-06FA-24-3000	24	30	3000	0.6MAX	2200	1.4	0.08	>5000	0.7
BLDC-06FA-36-3000	36	30	3000	0.4MAX	2300	0.93	0.08	>5000	0.7
BLDC-06FA-48-3000	48	30	3000	0.26MAX	2400	0.62	0.08	>5000	0.7
BLDC-06FA-220-3000	220	30	3000	0.12MAX	2500	0.34	0.08	>5000	0.7
BLDC-06FB-24-1800	24	50	3000	0.7MAX	2200	2.1	0.15	>5000	0.9
BLDC-06FB-36-3000	36	50	3000	0.45MAX	2300	1.34	0.15	>5000	0.9
BLDC-06FB-48-1800	48	50	3000	0.31MAX	2400	0.93	0.15	>5000	0.9
BLDC-06FB-220-3000	220	50	3000	0.15MAX	2500	0.5	0.15	>5000	0.9

可根據客戶要求定做電機電壓3V~220V電機，電機轉速1000~3000RPM

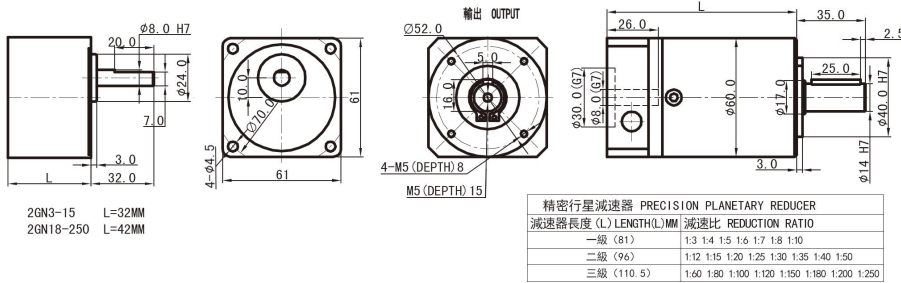
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



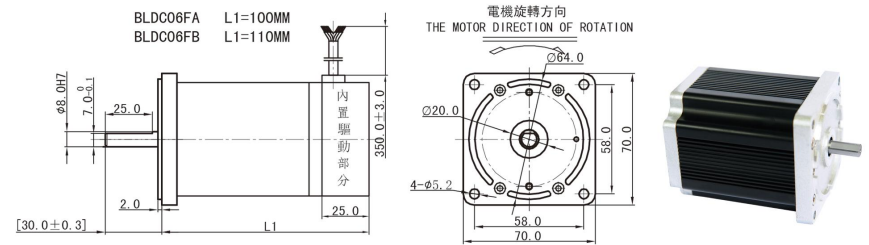
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING

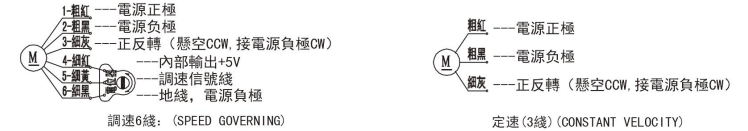


▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

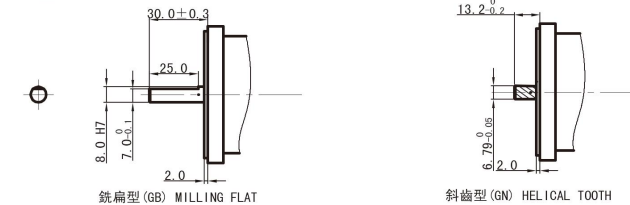
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTORWEIGHT (KG)
			轉速SPEED (R./MIN)	電流CURRENT (A)	轉速SPEED (R./MIN)	電流CURRENT (A)	力矩TORQUE (N. M)		
BLDC-06FA-24-3000	24	30	3000	0.6MAX	2200	1.4	0.08	>5000	0.7
BLDC-06FA-36-3000	36	30	3000	0.4MAX	2300	0.93	0.08	>5000	0.7
BLDC-06FA-48-3000	48	30	3000	0.26MAX	2400	0.62	0.08	>5000	0.7
BLDC-06FA-220-3000	220	30	3000	0.12MAX	2500	0.34	0.08	>5000	0.7
BLDC-06FB-24-1800	24	50	3000	0.7MAX	2200	2.1	0.15	>5000	0.9
BLDC-06FB-36-3000	36	50	3000	0.45MAX	2300	1.34	0.15	>5000	0.9
BLDC-06FB-48-1800	48	50	3000	0.31MAX	2400	0.93	0.15	>5000	0.9
BLDC-06FB-220-3000	220	50	3000	0.15MAX	2500	0.5	0.15	>5000	0.9

可根據客戶要求定做電機電壓3V~220V電機，電機轉速1000~3000RPM

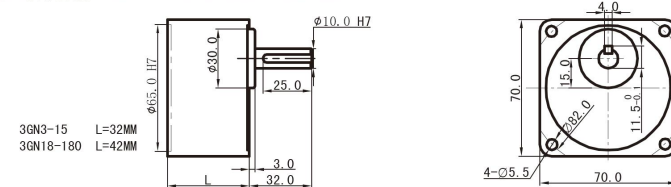
▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



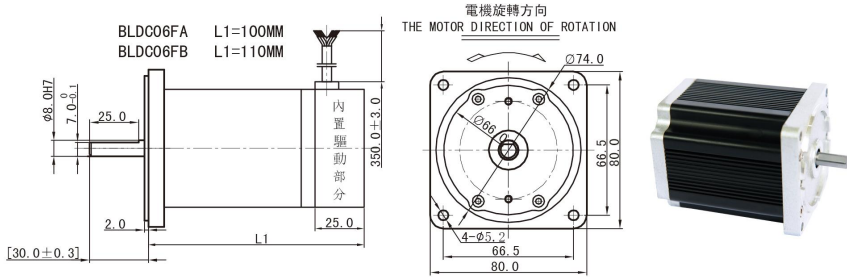
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



電機外形圖 MOTOR OUTLINE DRAWING

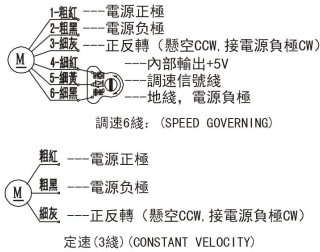


電機性能參數 MOTOR PERFORMANCE PARAMETERS

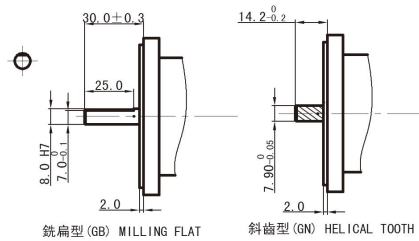
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTORWEIGHT (KG)
			轉速SPEED (R./MIN)	電流CURRENT (A)	轉速SPEED (R./MIN)	電流CURRENT (A)	力矩TORQUE (N. M)		
BLDC-06FA-24-3000	24	30	3000	0.6MAX	2200	1.4	0.08	>5000	0.7
BLDC-06FA-36-3000	36	30	3000	0.4MAX	2300	0.93	0.08	>5000	0.7
BLDC-06FA-48-3000	48	30	3000	0.26MAX	2400	0.62	0.08	>5000	0.7
BLDC-06FA-220-3000	220	30	3000	0.12MAX	2500	0.34	0.08	>5000	0.7
BLDC-06FB-24-1800	24	50	3000	0.7MAX	2200	2.1	0.15	>5000	0.9
BLDC-06FB-36-3000	36	50	3000	0.45MAX	2300	1.34	0.15	>5000	0.9
BLDC-06FB-48-1800	48	50	3000	0.31MAX	2400	0.93	0.15	>5000	0.9
BLDC-06FB-220-3000	220	50	3000	0.15MAX	2500	0.5	0.15	>5000	0.9

可根據客戶要求定做電機電壓3V-220V電機，電機轉速1000-3000RPM

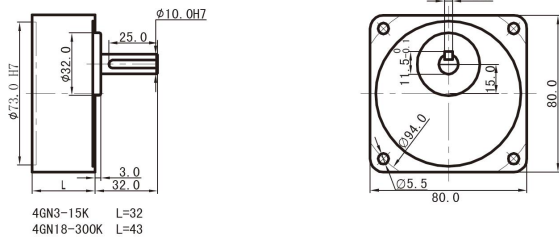
電機接線圖 WIRING DIAGRAM OF MOTOR



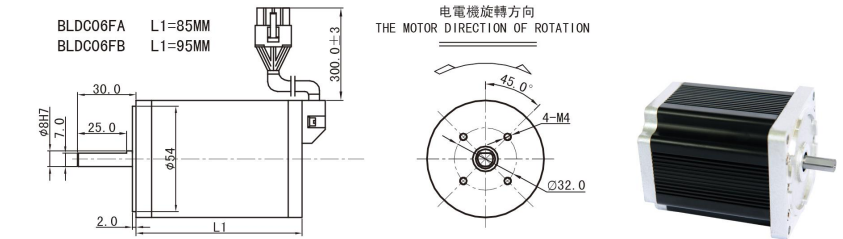
電機出軸類型 MOTOR SHAFT TYPE



適配減速器 ADAPTIVE SPEED REDUCER



電機外形圖 MOTOR OUTLINE DRAWING



電機性能參數 MOTOR PERFORMANCE PARAMETERS

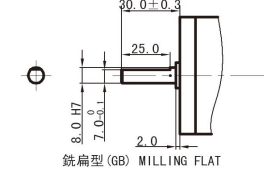
型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTORWEIGHT (KG)
			轉速SPEED (R./MIN)	電流CURRENT (A)	轉速SPEED (R./MIN)	電流CURRENT (A)	力矩TORQUE (N. M)		
BLDC-06FA-24-3000	24	30	3000	0.6MAX	2200	1.4	0.08	>5000	0.6
BLDC-06FA-36-3000	36	30	3000	0.4MAX	2300	0.93	0.08	>5000	0.6
BLDC-06FA-48-3000	48	30	3000	0.26MAX	2400	0.62	0.08	>5000	0.6
BLDC-06FA-220-3000	220	30	3000	0.12MAX	2500	0.34	0.08	>5000	0.6
BLDC-06FB-24-1800	24	50	3000	0.7MAX	2200	2.1	0.15	>5000	0.8
BLDC-06FB-36-3000	36	50	3000	0.45MAX	2300	1.34	0.15	>5000	0.8
BLDC-06FB-48-1800	48	50	3000	0.31MAX	2400	0.93	0.15	>5000	0.8
BLDC-06FB-220-3000	220	50	3000	0.15MAX	2500	0.5	0.15	>5000	0.8

可根據客戶要求定做電機電壓3V-220V電機，電機轉速1000-3000RPM

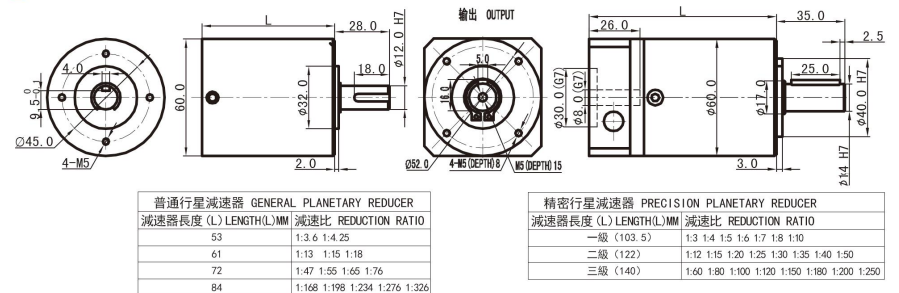
電機接線圖 WIRING DIAGRAM OF MOTOR



電機出軸類型 MOTOR SHAFT TYPE



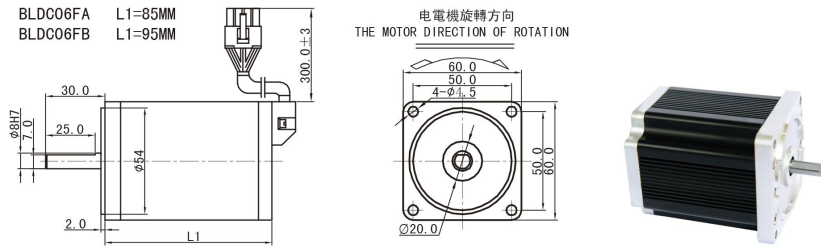
適配減速器 ADAPTIVE SPEED REDUCER



減速器長度 (L) LENGTH (L) (MM)	減速比 REDUCTION RATIO
53	1:3.6 1:4.25
61	1:13 1:15 1:18
72	1:47 1:55 1:65 1:76
84	1:168 1:198 1:234 1:276 1:326

減速器長度 (L) LENGTH (L) (MM)	減速比 REDUCTION RATIO
一般 (103.5)	1:3 1:4 1:5 1:6 1:7 1:8 1:10
二級 (122)	1:12 1:15 1:20 1:25 1:30 1:35 1:40 1:50
三級 (140)	1:60 1:80 1:100 1:120 1:150 1:180 1:200 1:250

▶ 電機外形圖 MOTOR OUTLINE DRAWING

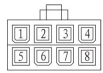


▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
BLDC-06FA-24-3000	24	30	3000	0.6MAX	2200	1.4	0.08	>5000	0.6
BLDC-06FA-36-3000	36	30	3000	0.4MAX	2300	0.93	0.08	>5000	0.6
BLDC-06FA-48-3000	48	30	3000	0.26MAX	2400	0.62	0.08	>5000	0.6
BLDC-06FA-220-3000	220	30	3000	0.12MAX	2500	0.34	0.08	>5000	0.6
BLDC-06FB-24-1800	24	50	3000	0.7MAX	2200	2.1	0.15	>5000	0.8
BLDC-06FB-36-3000	36	50	3000	0.45MAX	2300	1.34	0.15	>5000	0.8
BLDC-06FB-48-1800	48	50	3000	0.31MAX	2400	0.93	0.15	>5000	0.8
BLDC-06FB-220-3000	220	50	3000	0.15MAX	2500	0.5	0.15	>5000	0.8

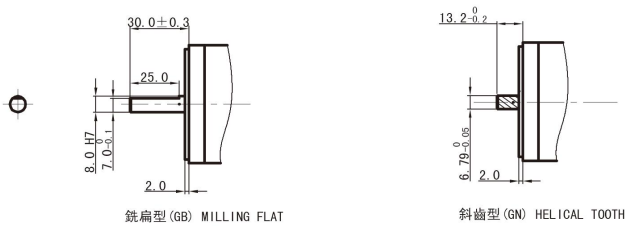
可根據客戶要求定做電機電壓3V~220V電機，電機轉速1000~3000RPM

▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



PLUGHOLE	1	2	3	4
SIGNAL WIRE	U	W	HV	HU
PLUGHOLE	5	6	7	8
SIGNAL WIRE	V	GND	HW	VOC

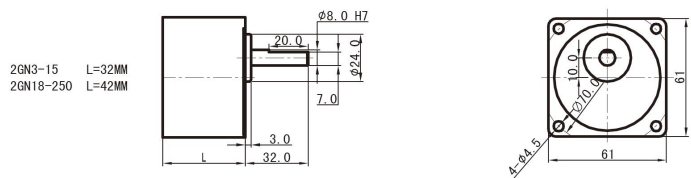
▶ 電機出軸類型 MOTOR SHAFT TYPE



銑扁型 (GB) MILLING FLAT

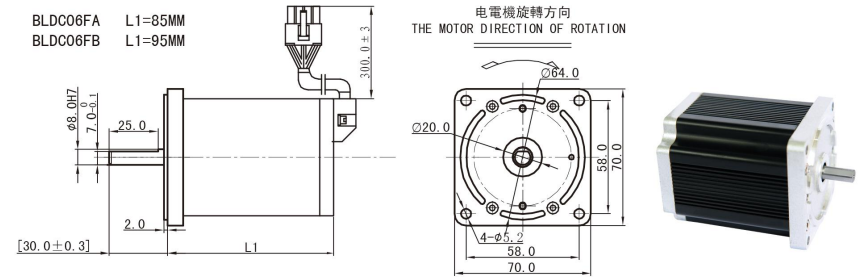
斜齒型 (GN) HELICAL TOOTH

▶ 適配減速器 ADAPTIVE SPEED REDUCER



2GN3-15 L=32MM
2GN18-250 L=42MM

▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
BLDC-06FA-24-3000	24	30	3000	0.6MAX	2200	1.4	0.08	>5000	0.6
BLDC-06FA-36-3000	36	30	3000	0.4MAX	2300	0.93	0.08	>5000	0.6
BLDC-06FA-48-3000	48	30	3000	0.26MAX	2400	0.62	0.08	>5000	0.6
BLDC-06FA-220-3000	220	30	3000	0.12MAX	2500	0.34	0.08	>5000	0.6
BLDC-06FB-24-1800	24	50	3000	0.7MAX	2200	2.1	0.15	>5000	0.8
BLDC-06FB-36-3000	36	50	3000	0.45MAX	2300	1.34	0.15	>5000	0.8
BLDC-06FB-48-1800	48	50	3000	0.31MAX	2400	0.93	0.15	>5000	0.8
BLDC-06FB-220-3000	220	50	3000	0.15MAX	2500	0.5	0.15	>5000	0.8

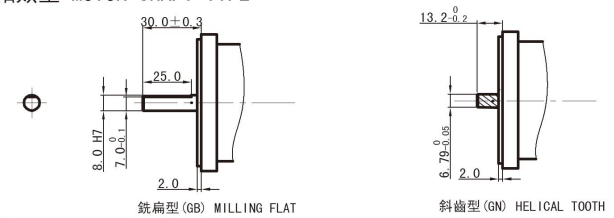
可根據客戶要求定做電機電壓3V~220V電機，電機轉速1000~3000RPM

▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



PLUGHOLE	1	2	3	4
SIGNAL WIRE	U	W	HV	HU
PLUGHOLE	5	6	7	8
SIGNAL WIRE	V	GND	HW	VOC

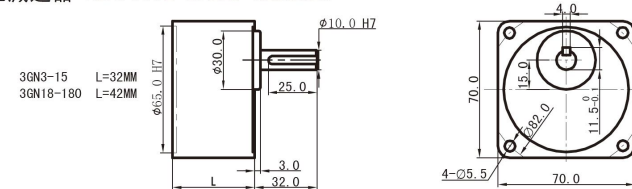
▶ 電機出軸類型 MOTOR SHAFT TYPE



銑扁型 (GB) MILLING FLAT

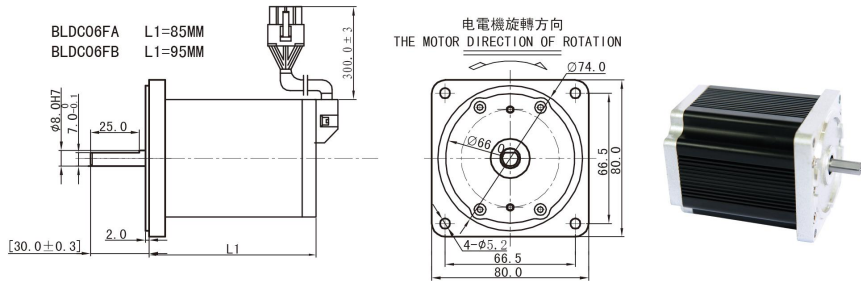
斜齒型 (GN) HELICAL TOOTH

▶ 適配減速器 ADAPTIVE SPEED REDUCER



3GN3-15 L=32MM
3GN18-180 L=42MM

▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
BLDC-06FA-24-3000	24	30	3000	0.6MAX	2200	1.4	0.08	>5000	0.6
BLDC-06FA-36-3000	36	30	3000	0.4MAX	2300	0.93	0.08	>5000	0.6
BLDC-06FA-48-3000	48	30	3000	0.26MAX	2400	0.62	0.08	>5000	0.6
BLDC-06FA-220-3000	220	30	3000	0.12MAX	2500	0.34	0.08	>5000	0.6
BLDC-06FB-24-1800	24	50	3000	0.7MAX	2200	2.1	0.15	>5000	0.8
BLDC-06FB-36-3000	36	50	3000	0.45MAX	2300	1.34	0.15	>5000	0.8
BLDC-06FB-48-1800	48	50	3000	0.31MAX	2400	0.93	0.15	>5000	0.8
BLDC-06FB-220-3000	220	50	3000	0.15MAX	2500	0.5	0.15	>5000	0.8

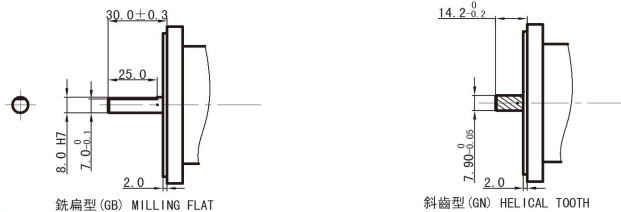
可根據客戶要求定做電機電壓3V~220V電機，電機轉速1000~3000RPM

▶ 電機接線圖 WIRING DIAGRAM OF MOTOR

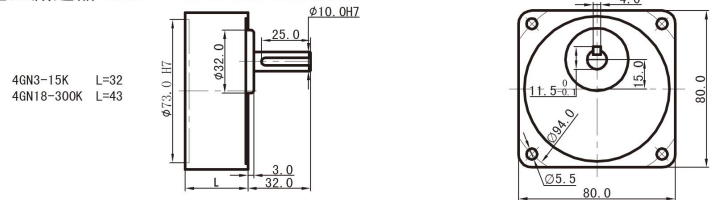


PLUGHOLE	1	2	3	4
SIGNAL WIRE	U	W	HV	HU
PLUGHOLE	5	6	7	8
SIGNAL WIRE	V	GND	HW	VOC

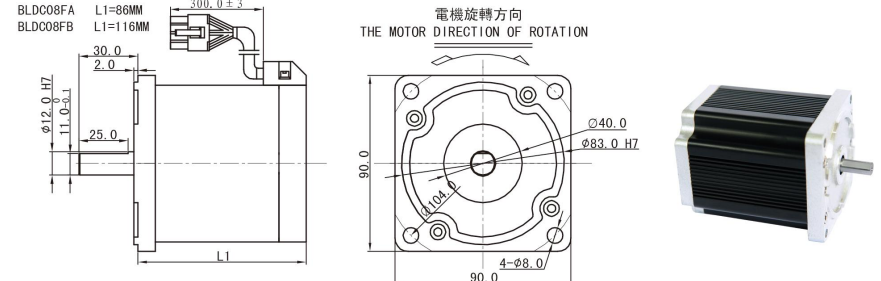
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING



▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速SPEED (R/MIN)	電流CURRENT (A)	轉速SPEED (R/MIN)	電流CURRENT (A)	力矩TORQUE (N.M)		
BLDC-08FA-24-3000	24	150	3000	0.8MAX	2200	10.5	0.65	>5000	1.6
BLDC-08FA-36-3000	36	150	3000	0.65MAX	2300	6	0.65	>5000	1.6
BLDC-08FA-48-3000	48	150	3000	0.45MAX	2400	4.3	0.65	>5000	1.6
BLDC-08FA-220-3000	220	150	3000	0.3MAX	2500	0.48	0.65	>5000	1.6
BLDC-08FB-24-1800	24	200	3000	0.75MAX	2200	9.5	0.88	>5000	2.6
BLDC-08FB-36-3000	36	200	3000	0.6MAX	2300	6.3	0.88	>5000	2.6
BLDC-08FB-48-1800	48	200	3000	0.4MAX	2400	4.1	0.88	>5000	2.6
BLDC-08FB-220-3000	220	200	3000	0.3MAX	2500	0.7	0.88	>5000	2.6

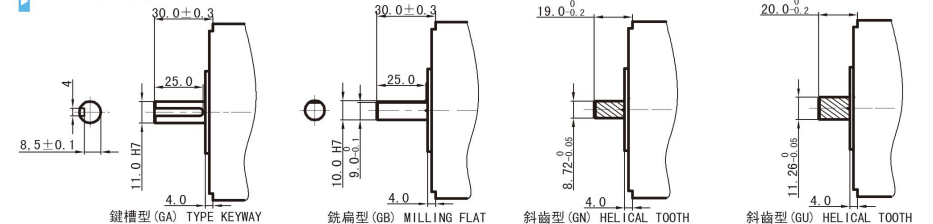
可根據客戶要求定做電機電壓3V~220V電機，電機轉速1000~3000RPM

▶ 電機接線圖 WIRING DIAGRAM OF MOTOR

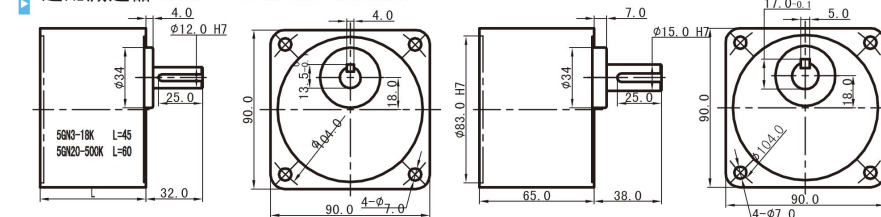


PLUGHOLE	1	2	3	4
SIGNAL WIRE	U	W	HV	HU
PLUGHOLE	5	6	7	8
SIGNAL WIRE	V	GND	HW	VOC

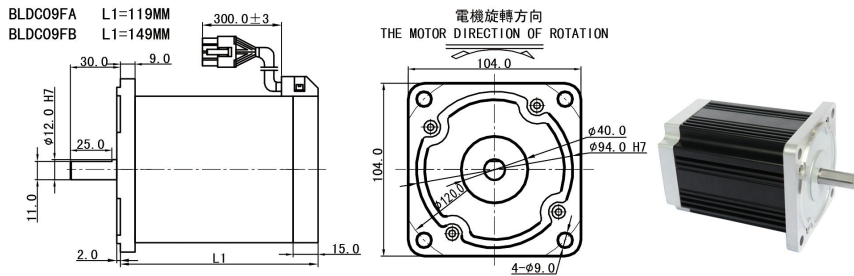
▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER



▶ 電機外形圖 MOTOR OUTLINE DRAWING

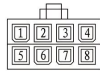


▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

型號 MODEL	電壓 VOLTAGE (V)	輸出功率 OUTPUT POWER (W)	空載參數 NO-LOAD PARAMETERS		負載參數 LOAD PARAMETERS			電機壽命 BRUSH LIFE (H)	電機重量 MOTOR WEIGHT (KG)
			轉速 SPEED (R/MIN)	電流 CURRENT (A)	轉速 SPEED (R/MIN)	電流 CURRENT (A)	力矩 TORQUE (N.M)		
BLDC-09FA-24-3000	24	300	3000	1.2MAX	2200	15.5	1.25	>5000	2.5
BLDC-09FA-36-3000	36	300	3000	0.8MAX	2300	10.3	1.25	>5000	2.5
BLDC-09FA-48-3000	48	300	3000	0.5MAX	2400	6.9	1.25	>5000	2.5
BLDC-09FA-220-3000	220	300	3000	0.3MAX	2500	1.2	1.25	>5000	2.5
BLDC-09FB-24-1800	24	500	3000	2.1MAX	2200	22.8	2.18	>5000	3.2
BLDC-09FB-36-3000	36	500	3000	1.4MAX	2300	15.2	2.18	>5000	3.2
BLDC-09FB-48-1800	48	500	3000	0.9MAX	2400	10.1	2.18	>5000	3.2
BLDC-09FB-220-3000	220	500	3000	0.6MAX	2500	1.8	2.18	>5000	3.2

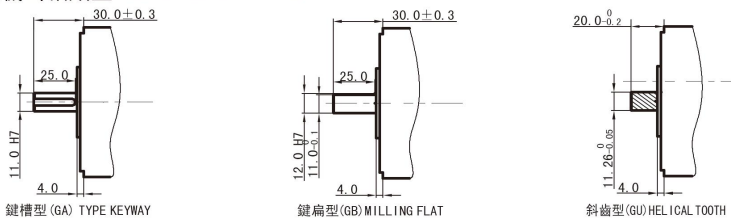
可根據客戶要求定做電機電壓3V-220V電機，電機轉速1000-3000RPM

▶ 接線插孔對應信號說明接線圖 CORRESPONDING SIGNAL CONNECTION SOCKET WIRING DIAGRAM

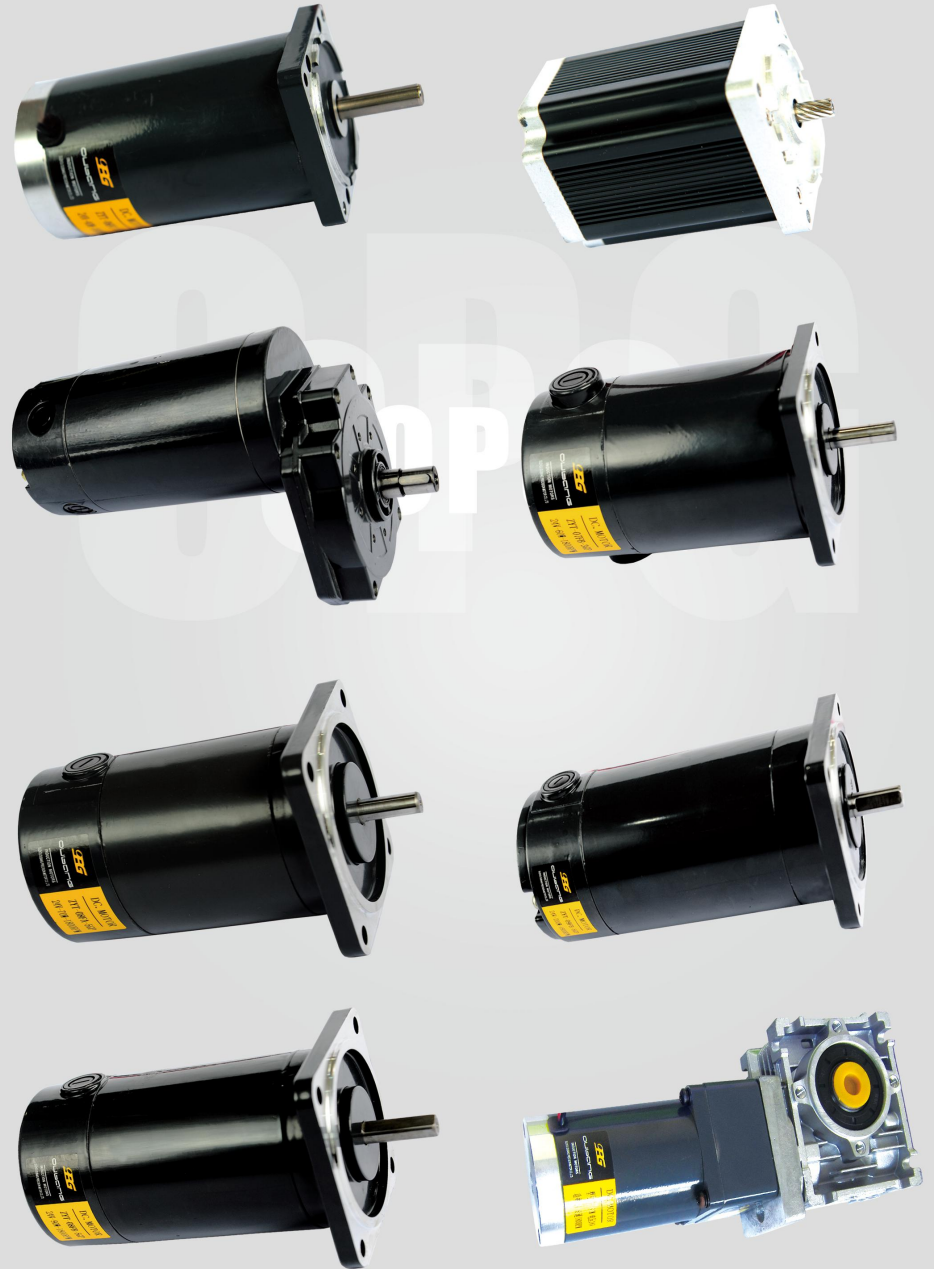
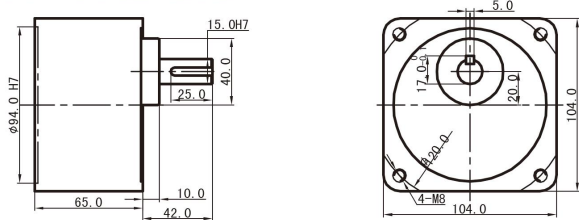


PLUGHOLE	1	2	3	4
SIGNAL WIRE	U	W	HV	HU
PLUGHOLE	5	6	7	8
SIGNAL WIRE	V	GND	HW	VOC

▶ 電機出軸類型 MOTOR SHAFT TYPE



▶ 適配減速器 ADAPTIVE SPEED REDUCER





接 綫 定 義 WIRING DEFINITION

標 示 (MARK)	定 義 (DEFINE)
AC ⁺ /AC ⁻	交流電壓輸入端 (AC180~240V) AC VOLTAGE INPUT END (AC180~240 - V)
U, V, W	電機相線 (粗綫接 U, V, W) MOTOR PHASE LINE (THICK LINE TO MEET U, V, W)
HU, HV, HW	霍爾信號綫 (細綫接HU, HV, HW) HALL SIGNAL LINES (THIN LINE, HV, HW)
REF+	霍爾電源+ (給電機霍爾供電+5V) HALL HALL POWER + (FOR MOTOR POWER SUPPLY + 5 V)
REF-	霍爾電源- (霍爾地綫接在此端口) POWER - HALL (HALL GROUND ON THE PORT)
VCC	外接電位器供電 (不可做其他外部供電) AN EXTERNAL POTENTIOMETER POWER SUPPLY (NOT DO OTHER EXTERNAL POWER SUPPLY)
SV	外接調速。(詳見速度調節說明) EXTERNAL CONTROL (SEE NOTE SPEED REGULATION)
COM	公共端口 (低電平) THE PUBLIC PORT (LOW LEVEL)
F/R	方向, 懸空或高電平時為正轉, 低電平反轉 注1 SUSPENDED OR HIGH LEVELS, LOW-LEVEL INVERSION NOTE 1 FOR THE FORWARD DIRECTION.
EN	控制信號使能端 高電平停車, 低運行 注1 HIGH LEVEL PARKING, LOW RUNNING NOTE 1 CONTROL SIGNAL CAN MAKE THE
BRK	剎車, 低電平時為正常工作, 高電平停機 注1 BRAKE, LOW ELECTRICITY AT ORDINARY TIMES WORKING FOR NORMAL, HIGH LEVEL DOWN NOTE 1
SPEED	速度信號輸出端 SPEED SIGNAL OUTPUT TERMINAL
ALARM	警告信號輸出端 WARNING SIGNAL OUTPUT TERMINAL

注1: F/R與COM斷開電機正轉, 閉合為反轉。EN與COM閉合為運行, 斷開為待機。BRK與COM閉合為運行, 斷開為剎車。當使用BRK控制時, EN要短接到COM端, 當使用EN控制時, BRK要短接到COM端。
NOTE 1: THE F/R AND COM DISCONNECT THE MOTOR FORWARD, CLOSED FOR REVERSAL. EN CLOSED WITH COM FOR RUNNING, DISCONNECT FOR STANDBY. BRK AND COM SIDE CLOSED TO RUN, DISCONNECT FOR THE BRAKE. WHEN USING BRK CONTROL, SHORTER EN RECEIVED COM PORT. WHEN USING EN CONTROL, SHORTER BRK RECEIVED COM PORT.

產 品 說 明 PRODUCT DESCRIPTION

本款直流無刷電機驅動器適用於功率為750VA及以下高壓三相直流無刷電機本產品設計採用先進的DSP控制技術, 具有大扭矩, 低雜訊, 低振動, 快速啟停等特性同時具備PID電流及速度閉環控制, 過壓, 欠壓, 過流, 過溫等保護功能, 實現了手動速度調節與上位機模擬電壓速度調節, 上位機脈衝頻率速度調節的完美統一。同時具有RS232通訊控制功能 (選配), 客戶可選用本公司顯示控制面板BLDD-01進行馬達參數及運行狀態控制, 也可根據本產品所提供RS232通訊協議自主設計上位控制器進行馬達控制。

主要應用: 適合各種中小型自動化設備和儀器, 例如: 點膠機, 打標機, 切割機, 鐳射照排, 繪圖儀, 數控機床, 自動裝配設備等。

THE MODEL OF BRUSHLESS DC MOTOR DRIVE IS SUITABLE FOR USE IN POWER FOR 750 VA AND UNDER HIGH PRESSURE THREE-PHASE BRUSHLESS DC MOTOR ADOPTS ADVANCED DSP CONTROL TECHNOLOGY. THIS PRODUCT DESIGN WITH LARGE TORQUE, LOW NOISE, LOW VIBRATION, SUCH AS RAPID START-UP CHARACTERISTICS AND PID CURRENT AND SPEED CLOSED LOOP CONTROL, OVERVOLTAGE, UNDERVOLTAGE, OVER CURRENT, OVER TEMPERATURE PROTECTION FUNCTION, REALIZED THE MANUAL ANALOG VOLTAGE REGULATING SPEED, SPEED REGULATION AND THE UPPER MACHINE PC PULSE FREQUENCY SPEED REGULATION OF PERFECT AND UNIFIED. WITH RS232 COMMUNICATION CONTROL FUNCTION (OPTIONAL) AT THE SAME TIME, THE CUSTOMER CAN CHOOSE THE COMPANY DISPLAY CONTROL PANEL BLDD - 01 TO MOTOR PARAMETER AND RUNNING STATE CONTROL. ALSO CAN ACCORDING TO THE PRODUCTS PROVIDED BY RS232 COMMUNICATION PROTOCOL INDEPENDENT HOST CONTROLLER IS DESIGNED FOR MOTOR CONTROL. MAIN APPLICATIONS: SUITABLE FOR ALL KINDS OF SMALL AND MEDIUM-SIZED AUTOMATION EQUIPMENT AND INSTRUMENTS, SUCH AS DISPENSING MACHINE, MARKING MACHINE, CUTTING MACHINE, LASER TYPESETTING, PLOTTER, NC MACHINE TOOLS, AUTOMATIC ASSEMBLY EQUIPMENT, ETC.

產 品 特 點 PRODUCT FEATURES

● 可應用於上位機 (PLC或單片機等) PWM頻率或模擬量調速	CAN BE APPLIED TO THE UPPER MACHINE (PLC AND SINGLE-CHIP MICROCOMPUTER, ETC.) OR ANALOG PWM FREQUENCY CONTROL OF MOTOR SPEED
● 可採用手動調速方式 (自帶電位器, 也可外接電位器手動調速)	CAN USE MANUAL CONTROL METHODS (BUILT-IN POTENTIOMETER, ALSO CAN BE AN EXTERNAL POTENTIOMETER MANUAL CONTROL OF MOTOR SPEED)
● 啟動停止控制	START STOP CONTROL
● 正反轉控制	AND REVERSING CONTROL
● 超載保護設定: P-SV可設定不同功率的電機保護參數	OVERLOAD PROTECTION SETTING: P - SV CAN SET DIFFERENT POWER OF MOTOR PROTECTION PARAMETERS
● 高速度矩輸出平穩, 轉速穩定	HIGH SPEED SMOOTH TORQUE OUTPUT, SPEED STABILITY
● 過流、過壓、欠壓、堵轉、霍爾信號非法、溫度保護	OVER-CURRENT, OVER-VOLTAGE, UNDER-VOLTAGE, LOCKED-ROTOR, ILLEGAL HALL SIGNAL, TEMPERATURE PROTECTION
● 速度信號輸出	SPEED SIGNAL OUTPUT
● 異常報警信號輸出	ABNORMAL ALARM SIGNAL OUTPUT
● 具有剎車制動功能	WITH FUNCTIONS OF BRAKING
● 通訊功能, 控制器調速, 顯示速度, 等功能 (需另購)	COMMUNICATION FUNCTION, SPEED CONTROLLER, THE FUNCTION SUCH AS DISPLAY SPEED (AVAILABLE SEPARATELY)

電 氣 參 數 ELECTRICAL PARAMETERS

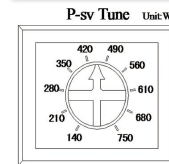
參 數 (PARAMETER)	MIN	RATED	MAX	UNIT
電機霍爾角度 MOTOR HALL ANGLE		120° /240°		
交流電源輸入電壓 THE AC POWER INPUT VOLTAGE	180	220	245	VAC
驅動電流輸出 DRIVE CURRENT OUTPUT	0	4.2	8	A
適用電機轉速 FOR MOTOR SPEED	0		20000	RPM
霍爾信號電壓 HALL VOLTAGE SIGNAL	4.5	5	5.5	V
霍爾信號電流 HALL SIGNAL CURRENT		20		MA
外接電位器 AN EXTERNAL POTENTIOMETER		10K		Ω

保 養 與 調 速 說 明 注 意 事 項 MAINTENANCE AND CONTROL OF MOTOR SPEED CONSIDERATIONS

冷卻方式COOLING WAY	風冷THE WIND COOLING
使用場合USE OCCASIONS	避免粉塵 油污及腐蝕性物體AVOID DUST POLLUTION AND CORROSIVE OBJECTS
使用溫度USE OF TEMPERATURE	-10° ~+50°
環境濕度ENVIRONMENTAL HUMIDITY	<80%RH 不凝露 不結霜 RH GEL FROSTING
震動VIBRATION	最大不超過5.7M/S2MAXIMUM OF NO MORE THAN 5.7 M/S2
保存SAVE	-20° ~+125° 避免灰塵 最好使用原包裝AVOID DUST IT IS BEST TO USE THE ORIGINAL PACKAGING
絕緣電阻INSULATION RESISTANCE:	常溫常壓下>500MΩ > 500 M Ω UNDER ATMOSPHERIC PRESSURE

1. 使用內部電位器 RV 進行電機轉速調節: SW1= SW2=OFF (出廠設定) USING INTERNAL POTENTIOMETER RV FOR MOTOR SPEED ADJUSTMENT: SW1 SW2 = = OFF (FACTORY SETTING).
2. 使用外部電位器進行電機轉速調節: SW1=SW2=OFF (出廠設定) 外部電位器中間抽頭接SV, 另外兩端接VCC及COM, 同時關閉RV USING EXTERNAL POTENTIOMETER FOR MOTOR SPEED ADJUSTMENT: SW1 SW2 = = OFF (FACTORY SETTING) EXTERNAL POTENTIOMETER INTERMEDIATE TAP SV, THE OTHER TWO ENDS VCC AND COM. ALSO CLOSE THE RV.
3. 使用外部模擬電壓輸入進行電機轉速調節: SW1=SW2=OFF (同時關閉RV) USING EXTERNAL ANALOG VOLTAGE INPUT FOR MOTOR SPEED ADJUSTMENT: SW1 SW2 = = OFF (CLOSED THE RV) AT THE SAME TIME.
4. 使用外部脈衝頻率輸入進行電機轉速調節: 脈衝頻率: 0K~3KHZ 速度線性調節, 脈衝幅值: 5V, 脈衝占空比: 50%. 用戶需設定SW1=SW2=ON, 同時關閉RV, USING EXTERNAL PULSE FREQUENCY INPUT FOR MOTOR SPEED ADJUSTMENT: PULSE FREQUENCY: 0 K - 3 KHZ LINEAR ADJUSTING SPEED PULSE AMPLITUDE: 5 V, PULSE DUTY RATIO: 50%, USERS NEED TO SET SW1 SW2 = = ON, AT THE SAME TIME CLOSE THE RV.
5. 驅動器PID閉環控制電機快速響應設定: J1=ON (用戶設定):PID閉環控制一電機快速響應J1=OFF (出廠設定):無PID閉環控制一電機普通響應PID CLOSED-LOOP CONTROL MOTOR DRIVE FAST RESPONSE SETTING: J1 = ON SET (USER) : PID CLOSED-LOOP CONTROL - MOTOR QUICK RESPONSE J1 = OFF (FACTORY SETTING) : NO ORDINARY PID CLOSED-LOOP CONTROL - MOTOR RESPONSE.
6. 電機轉速信號輸出: SPEED 和 COM 端可輸出速度信號F (HZ) N= (F/P*60) / 3. F: 輸出脈衝頻率, P: 電機極對數, N: 電機轉速。因為此信號進行了3倍頻, 所以測出轉速還原。MOTOR SPEED SIGNAL OUTPUT: SPEED AND COM PORT CAN BE OUTPUT SPEED SIGNAL (HZ) N = F (F/P * 60) / 3. F: OUTPUT PULSE FREQUENCY, P: MOTOR LOGARITHM, N: MOTOR SPEED. BECAUSE THE SIGNAL FREQUENCY FOR THREE TIMES, SO MEASURE SPEEDRE DUTION.
7. 驅動器報警信號輸出: 當驅動器出現報警時, ALARM端與COM端將會導通從而使ALARM端成為低電平, 同時驅動器停止工作報警燈閃爍DRIVE ALAR MOUT PUT: WHEN THE DRIVER APPEARED ALARM, ALARM END AND COM END CONDUCTION SO THAT THE ALARM WILL BE END TO BECOME A LOW LEVEL. AT THE SAME TIME DRIVE TO STOP WORKING LAMP FLICKER.
8. 接綫注意事項: 注意電機UVW三相的接綫順序以及霍爾信號綫的UVW及電源綫的接綫順序, 出現錯誤時電機將無法正常工作WIRING NOTE: NOTE THAT THE SEQUENCE OF WIRING UVW THREE-PHASE MOTOR AND SALE OF HALL SIGNAL LINES AND THE CONNECTION SEQUENCE OF THE POWER CORD, THERE IS AN ERROR WHEN THE MOTOR WILL NOT BE ABLE TO WORK PROPERLY.

功 率 設 定 POWER SETTING



為防止電機長時間超功率運行從而損壞電機請按照左圖所示數值結合所配電機功率進行正確設定當負載發生較大變化導致電機實際運行功超設定值時驅動器將進入自動保護模式
TO PREVENT DAMAGE OF ELECTRIC PILOT TIME TO SUPER POWER AND ELECTRICITY PLEASE AS SHOWN IN LEFT NUMERICAL COMBINATION WITH MOTOR POWER BY PROPERLY SETTING THE ACTUAL OPERATION RESULT IN GREAT CHANGES HAVE TAKEN PLACE WHEN THE LOAD MOTOR WORK EXCEEDS THE SET VALUE WILL DRIVE INTO THE AUTOMATIC PROTECTION MODE

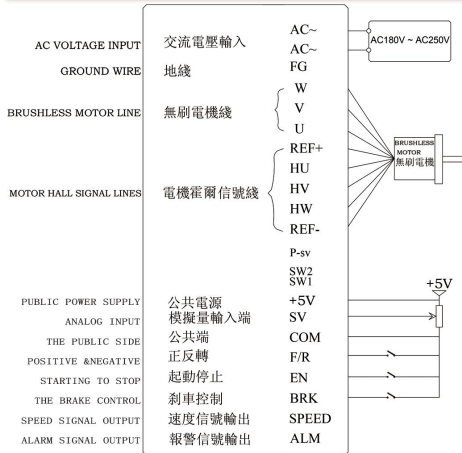
指 示 燈 說 明 INDICATOR LIGHT SHOW

指 示 燈 INDICATOR LIGHT	綠燈常亮 GREEN LIGHT NORMALLY ON	電源指示燈 POWER LIGHT
	紅燈常亮 NORMALLY ON A RED LIGHT	電機過流 HALL輸入錯誤 MOTOR OVER-CURRENT HALL INPUT ERRORS
	紅燈閃爍 THE RED LIGHT FLASHING	堵轉保護, 過溫保護, 過壓保護 STALLING PROTECTION, OVER TEMPERATURE PROTECTION, OVER VOLTAGE PROTECTION

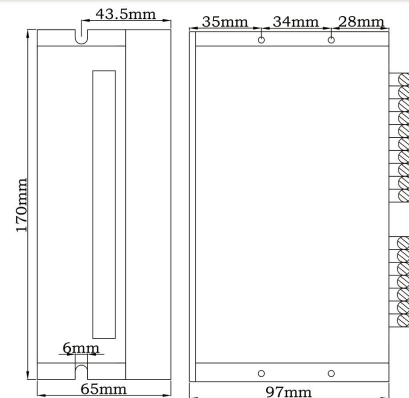
▶ 接口功能說明 INTERFACE FUNCTION DESCRIPTION

- (1) 電機運行/停止控制 (EN) THE MOTOR RUN/STOP CONTROL
控制端子EN相對COM的通斷可以控制電機的運行和停止。當與COM端子接通時電機運行，反之電機停止運行。CONTROL TERMINAL EN RELATIVE COM ON-OFF CAN CONTROL MOTOR RUNNING AND STOP. WHEN CONNECT COM TERMINAL WITH THE MOTOR RUNNING, VICE MOTOR TO STOP RUNNING.
- (2) 電機正/反轉控制 (F/R) THE MOTOR IS/INVERSION OF CONTROL
控制F/R與COM的通斷可以控制運轉方向。當F/R與COM不接通時，電機順時針運行，反之則電機逆時針方向運轉。F/R CONTROL AND ON-OFF CAN CONTROL THE RUNNING DIRECTION OF COM. WHEN F/R AND COM IS NOT CONNECTED, MOTOR CLOCKWISE OPERATION, MOTOR CONVERSELY COUNTERCLOCKWISE.
- (3) 制動停機 (BRK) BRAKE DOWN
控制BRK與COM的通斷可以制動停機。當控制BRK與COM接通時，電機運行，斷開時制動停止，制動停機比自然停機快，具體停機時間與用戶系統的負載慣量有關。BRK CONTROL ON-OFF CAN BRAKE DOWN WITH COM. WHEN THE CONTROL BRK WHEN CONNECTED WITH COM, AND THE MOTOR RUNNING, DISCONNECT THE BRAKE TO STOP, BRAKE DOWN FASTER THAN NATURAL DOWNTIME, SPECIFIC DOWNTIME ASSOCIATED WITH THE LOAD MOMENT OF INERTIA OF THE USER'S SYSTEM.
- (4) 電機轉速信號輸出 (SPEED) MOTOR SPEED SIGNAL OUTPUT
電機轉速信號輸出：SPEED 和 COM 端可輸出速度信號F (HZ) $N = (F/P * 60) / 3$ ，F：輸出脈衝頻率，P：電機極對數，N：電機轉速。因為此信號進行了3倍頻，所以測出轉速還原。MOTOR SPEED SIGNAL OUTPUT: SPEED AND COM PORT CAN BE OUTPUT SPEED SIGNAL (HZ) $N = F / (F/P * 60) / 3$ ，F：OUTPUT PULSE FREQUENCY，P：MOTOR LOGARITHM，N：MOTOR SPEED. BECAUSE THE SIGNAL FREQUENCY FOR THREE TIMES, SO MEASURE SPEED REDUCTION.
- (5) 報警輸出ALARM OUTPUT
驅動器報警輸出：該端口報警時，該端與GND導通（低電平），同時驅動器自行停止工作，處於報警狀態。DRIVE ALARM OUTPUT: WHEN THE PORT ALARM, THE SIDE WITH THE GND CONDUCTION (LOW LEVEL), THE DRIVE TO STOP WORKING AT THE SAME TIME, IN A STATE OF ALARM.

▶ 接線圖 THE WIRING DIAGRAM



▶ 安裝尺寸圖 INSTALLATION SIZE CHART



▶ 驱动器使用方法及注意事项 DRIVES USE METHOD AND MATTERS NEEDING ATTENTION

- 本驅動器適配電機為310VDC的三相直流無刷電機。THIS ADAPTATION MOTOR DRIVE IS 310 VDC THREE-PHASE BRUSHLESS DC MOTOR
- 按照圖示方法，正確連接電機繞組線，霍爾信號線及電源線，注意UVW三相的順序。ACCORDING TO THE GRAPHIC METHOD, THE CORRECT CONNECTION OF MOTOR WINDING LINE, THE HALL SIGNAL LINES AND POWER CORD, PAY ATTENTION TO THE SALE OF THREE PHASE SEQUENCE
- 電機方向的正反，需依靠正反轉控制端子F/R進行控制，不能像非同步電機那樣通過改變接線實現正反轉，不正確的接線會導致電機運轉不正常。MOTOR IN THE DIRECTION OF POSITIVE AND NEGATIVE, NEED TO RELY ON POSITIVE & NEGATIVE CONTROL TERMINAL TO CONTROL, THE F/R NOT LIKE ASYNCHRONOUS MOTOR BY CHANGING THE WIRING ACHIEVE POSITIVE & NEGATIVE, CAN LEAD TO INCORRECT WIRING IS ABNORMAL MOTOR
- 功率保護設定：從驅動器的參數設定表上選擇最接近電機額定功率的P-SV設定值，將電位器旋轉到相應位置。PARAMETER SETTING IN THE DRIVE POWER PROTECTION SETTING: TABLE CHOOSE THE MOST CLOSE TO THE MOTOR RATED POWER P - SV VALUE, ROTATE THE POTENTIOMETER TO THE CORRESPONDING POSITION
- 本款驅動器另配有速度顯示與設置裝置，可對電機速度及加減速時間等進行設定，如需要需另行購買（具體用法詳見速度設置裝置說明書）。THIS DRIVES THE OTHER IS EQUIPPED WITH SPEED DISPLAY AND SET UP THE DEVICE, CAN THE MOTOR SPEED AND DECELERATION TIME SETTINGS, SUCH AS THE NEED TO BUY SEPARATELY USAGE (FOR MORE INFORMATION ON SPEED SETTING DEVICE SPECIFICATION)

接線定義 WIRING DEFINITION

標示(MARK)	定義(DEFINE)
AC~/AC~	交流電壓輸入端 (AC80-265V) AC VOLTAGE INPUT END (AC80-265 - V)
U, V, W	電機相線 (粗線接 U, V, W) MOTOR PHASE LINE (THICK LINE TO MEET U, V, W)
HU, HV, HW	霍爾信號線 (細線接HU, HV, HW) HALL SIGNAL LINES (HU, FINE LINES, HV, HW)
REF+	霍爾電源+ (給電機霍爾供電+5V) HALL HALL POWER + (FOR MOTOR POWER SUPPLY + 5 V)
REF-	霍爾電源- (霍爾地線接在此端口) POWER - HALL (HALL GROUND ON THE PORT)
VCC	外接電位器供電 (不可做其他外部供電) AN EXTERNAL POTENTIOMETER POWER SUPPLY (NOT DO OTHER EXTERNAL POWER SUPPLY)
SV	外接調速。(詳見速度調節說明) EXTERNAL CONTROL. (SEE NOTE SPEED REGULATION)
COM	公共端口 (低電平) THE PUBLIC PORT (LOW LEVEL)
F/R	方向，懸空或高電平時為正轉，低電平反轉 注1 FOR THE FORWARD DIRECTION, SUSPENDED OR HIGH LEVELS, LOW-LEVEL INVERSION NOTE 1
EN	控制信號使能端 高電平停車，低運行 注1 CONTROL SIGNAL CAN MAKE THE HIGH LEVEL PARKING, LOW RUNNING NOTE 1
BRK	制動，低電平時為正常工作，高電平停機 注1 BRAKE, LOW ELECTRICITY AT ORDINARY TIMES WORKING FOR NORMAL, HIGH LEVEL DOWN NOTE 1
SPEED	速度信號輸出端 SPEED SIGNAL OUTPUT TERMINAL
ALARM	警告信號輸出端 WARNING SIGNAL OUTPUT TERMINAL

注1: F/R與COM斷開電機正轉，閉合為反轉，EN與COM閉合為運行，斷開為待機，BRK與COM閉合為運行，斷開為制動。當使用BRK控制時，EN要短接到COM端，當使用EN控制時，BRK要短接到COM端。
NOTE 1: THE F/R AND COM DISCONNECT THE MOTOR FORWARD, CLOSED FOR REVERSAL, EN CLOSED WITH COM FOR RUNNING, DISCONNECT FOR STANDBY, BRK AND COM SIDE CLOSED TO RUN, DISCONNECT FOR THE BRAKE. WHEN USING BRK CONTROL, SHORTER EN RECEIVED COM PORT, WHEN USING EN CONTROL, SHORTER BRK RECEIVED COM PORT.



▶ 產品說明 PRODUCT DESCRIPTION

本款直流無刷電機驅動器適用於功率為350W及以下高壓三相直流無刷電機本產品設計採用先進的DSP控制技術，具有大扭矩，低雜訊，低振動，快速啟停等特性同時具備PID電流及速度閉環控制，過壓，欠壓，過流，過溫，堵轉等保護功能，起停及換向控制，測速信號輸出，故障報警輸出，制動停車功能。
主要應用：適合各種中小型自動化設備和儀器，例如：點膠機，打標機，切割機，鐳射照排，繪圖儀，數控機床，自動裝配設備等。
THIS TYPE OF BRUSHLESS DC MOTOR DRIVE IS SUITABLE FOR THE POWER OF 350 W AND UNDER HIGH PRESSURE THREE-PHASE BRUSHLESS DC MOTOR ADOPTS ADVANCED DSP CONTROL TECHNOLOGY. THIS PRODUCT DESIGN WITH LARGE TORQUE, LOW NOISE, LOW VIBRATION, SUCH AS RAPID START-UP CHARACTERISTICS AND PID CURRENT AND SPEED CLOSED LOOP CONTROL, OVERVOLTAGE, UNDERVOLTAGE, OVER CURRENT, OVER TEMPERATURE, LOCKED-ROTOR PROTECTIVE FUNCTIONS, SUCH AS START-STOP AND COMMUTATION CONTROL, SPEED SIGNAL OUTPUT, FAULT ALARM OUTPUT, PARKING BRAKE FUNCTION. MAIN APPLICATIONS: SUITABLE FOR ALL KINDS OF SMALL AND MEDIUM-SIZED AUTOMATION EQUIPMENT AND INSTRUMENTS, SUCH AS DISPENSING MACHINE, MARKING MACHINE, CUTTING MACHINE, LASER TYPESETTING, PLOTTER, NC MACHINE TOOLS, AUTOMATIC ASSEMBLY EQUIPMENT, ETC.

▶ 產品特點 PRODUCT FEATURES

- 可應用於上位機 (PLC或單片機等) PWM頻率或模擬量調速 CAN BE APPLIED TO THE UPPER MACHINE (PLC AND SINGLE-CHIP MICROCOMPUTER, ETC.) OR ANALOG PWM FREQUENCY CONTROL OF MOTOR SPEED
- 可採用手動調速方式 (自帶電位器，也可外接電位器手動調速) CAN USE MANUAL CONTROL METHODS (BUILT-IN POTENTIOMETER, ALSO CAN BE AN EXTERNAL POTENTIOMETER MANUAL CONTROL OF MOTOR SPEED)
- 啟動停止控制 START STOP CONTROL.
- 正反轉控制 AND REVERSING CONTROL
- 超載保護功能: THE OVERLOAD PROTECTION FUNCTION
- 高速度矩輸出平穩，轉速穩定 HIGH SPEED SMOOTH TORQUE OUTPUT, SPEED STABILITY
- 過流、過壓、欠壓、堵轉、霍爾信號非法、溫度保護 OVER-CURRENT, OVER-VOLTAGE, UNDER-VOLTAGE, LOCKED-ROTOR, ILLEGAL HALL SIGNAL, TEMPERATURE PROTECTION
- 速度信號輸出 SPEED SIGNAL OUTPUT
- 異常報警信號輸出 ABNORMAL ALARM SIGNAL OUTPUT
- 具有制動制動功能 WITH FUNCTIONS OF BRAKING

電氣參數

ELECTRICAL PARAMETERS

參數 (PARAMETER)	MIN	RATED	MAX	UNIT
電機霍爾角度 MOTOR HALL ANGLE		120° / 240°		
交流電源輸入電壓 THE AC POWER INPUT VOLTAGE	80	220	265	VAC
驅動電流輸出 DRIVE CURRENT OUTPUT	0	2.5	5	A
適用電機轉速 FOR MOTOR SPEED	0		20000	RPM
霍爾信號電壓 HALL VOLTAGE SIGNAL	4.5	5	5.5	V
霍爾信號電流 HALL SIGNAL CURRENT		20		MA
外接電位器 AN EXTERNAL POTENTIOMETER		10K		Ω

▶ 保養与调速说明注意事项 MAINTENANCE AND CONTROL OF MOTOR SPEED CONSIDERATIONS

冷卻方式COOLING WAY	自然冷卻THE NATURAL COOLING
使用場合USE OCCASIONS	避免粉塵 油污及腐蝕性物體AVOID DUST POLLUTION AND CORROSIVE OBJECTS
使用溫度USE OF TEMPERATURE	-10° ~+50°
環境濕度ENVIRONMENTAL HUMIDITY	<80%RH 不凝露 不結霜 RH GEL FROSTING
震動VIBRATION	最大不超過5.7M/S2MAXIMUM OF NO MORE THAN 5.7 M/S2
保存SAVE	-20° ~+125° 避免灰塵 最好使用原包裝AVOID DUST IT IS BEST TO USE THE ORIGINAL PACKAGING
絕緣電阻INSULATION RESISTANCE:	常溫常壓下>500MΩ > 500 M Ω UNDER ATMOSPHERIC PRESSURE

1. 使用內部電位器 RV 進行電機轉速調節 USING INTERNAL POTENTIOMETER RV FOR MOTOR SPEED ADJUSTMENT.
2. 使用外部電位器進行電機轉速調節: (外部電位器中間抽頭接SV, 另外兩端接VCC及COM, 同時關閉RV) USING EXTERNAL POTENTIOMETER FOR MOTOR SPEED ADJUSTMENT: (EXTERNAL POTENTIOMETER INTERMEDIATE TAP SV, THE OTHER TWO ENDS VCC AND COM, AT THE SAME TIME CLOSED THE RV)
3. 使用外部模擬電壓輸入進行電機轉速調節: (同時關閉RV) USING EXTERNAL ANALOG VOLTAGE INPUT FOR MOTOR SPEED ADJUSTMENT: (AT THE SAME TIME CLOSED THE RV)
4. 使用外部脈衝頻率輸入進行電機轉速調節: 脈衝頻率: 0K—3KHZ 速度線性調節, 脈衝幅值: 5V, 脈衝占空比: 50%. (同時關閉RV) USING EXTERNAL PULSE FREQUENCY INPUT FOR MOTOR SPEED ADJUSTMENT: PULSE FREQUENCY: 0 K - 3 KHZ LINEAR ADJUSTING SPEED, PULSE AMPLITUDE: 5 V, PULSE DUTY RATIO: 50%. (AT THE SAME TIME CLOSED THE RV)
5. 電機轉速信號輸出: SPEED 和 COM 端可輸出速度信號F (HZ) $N = (F/P*60) / 3$, F: 輸出脈衝頻率, P: 電機極對數, N: 電機轉速。因為此信號進行了3倍頻, 所以測出轉速還原。 MOTOR SPEED SIGNAL OUTPUT: SPEED AND COM PORT CAN BE OUTPUT SPEED SIGNAL (HZ) $N = F (F/P * 60) / 3$. F: OUTPUT PULSE FREQUENCY, P: MOTOR LOGARITHM, N: MOTOR SPEED. BECAUSE THE SIGNAL FREQUENCY FOR THREE TIMES, SO MEASURE SPEED REDUCTION
6. 驅動器報警信號輸出: 當驅動器出現報警時, ALARM端與COM端將會導通而使ALARM端成為低電平, 同時驅動器停止工作報警燈閃爍DRIVE ALARM OUTPUT: WHEN THE DRIVER APPEARED ALARM, ALARM END AND COM END CONDUCTION SO THAT THE ALARM WILL BE END TO BECOME A LOW LEVEL. AT THE SAME TIME DRIVE TO STOP WORKING LAMP FLICKER

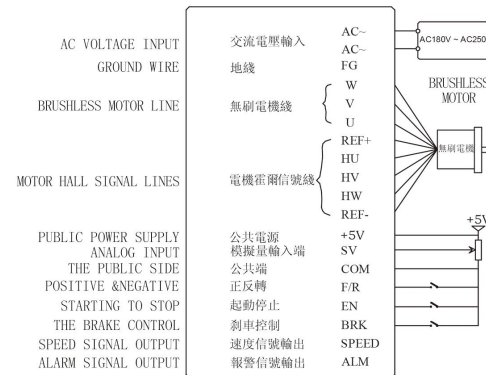
7. 接線注意事項: 注意電機UVW三相的接線順序以及霍爾信號線的UVW及電源線的接線順序, 出現錯誤時電機將無法正常工作WIRING NOTE: NOTE THAT THE SEQUENCE OF WIRING UVW THREE-PHASE MOTOR AND SALE OF HALL SIGNAL LINES AND THE CONNECTION SEQUENCE OF THE POWER CORD, THERE IS AN ERROR WHEN THE MOTOR WILL NOT BE ABLE TO WORK PROPERLY



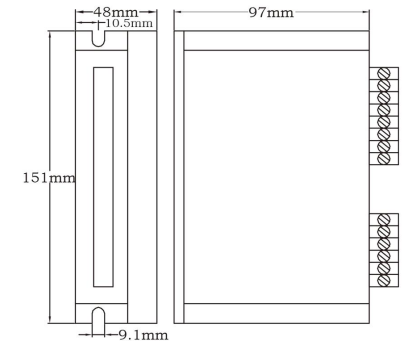
▶ 接口功能說明 INTERFACE FUNCTION DESCRIPTION

- (1). 電機運行/停止控制 (EN) THE MOTOR RUN/STOP CONTROL
控制端子EN相對COM的通斷可以控制電機的運行和停止。當與COM端子接通時電機運行, 反之電機停止運行。 CONTROL TERMINAL EN RELATIVE COM ON-OFF CAN CONTROL MOTOR RUNNING AND STOP. WHEN CONNECT COM TERMINAL WITH THE MOTOR RUNNING, VICE MOTOR TO STOP RUNNING.
- (2). 電機正/反轉控制 (F/R) THE MOTOR IS/INVERSION OF CONTROL
控制F/R與COM的通斷可以控制運轉方向。當F/R與COM不接通時, 電機順時針運行, 反之則電機逆時針方向運轉。 F/R CONTROL AND ON-OFF CAN CONTROL THE RUNNING DIRECTION OF COM. WHEN F/R AND COM IS NOT CONNECTED, MOTOR CLOCKWISE OPERATION, MOTOR CONVERSELY COUNTERCLOCKWISE.
- (3). 制動停機 (BRK) BRAKE DOWN
控制BRK與COM的通斷可以制動停機。當控制BRK與COM接通時, 電機運行, 斷開時制動停止, 制動停機比自然停機快, 具體停機時間與用戶系統的負載慣量有關。 BRK CONTROL ON-OFF CAN BRAKE DOWN WITH COM. WHEN THE CONTROL BRK WHEN CONNECTED WITH COM, AND THE MOTOR RUNNING, DISCONNECT THE BRAKE TO STOP, BRAKE DOWN FASTER THAN NATURAL DOWNTIME. SPECIFIC DOWNTIME ASSOCIATED WITH THE LOAD
- (4). MOMENT OF INERTIA OF THE USER'S SYSTEM.
電機轉速信號輸出 (SPEED) MOTOR SPEED SIGNAL OUTPUT
電機轉速信號輸出: SPEED 和 COM 端可輸出速度信號F (HZ) $N = (F/P*60) / 3$, F: 輸出脈衝頻率, P: 電機極對數, N: 電機轉速。因為此信號進行了3倍頻, 所以測出轉速還原。 MOTOR SPEED SIGNAL OUTPUT: SPEED AND COM PORT CAN BE OUTPUT SPEED SIGNAL (HZ) $N = F (F/P * 60) / 3$. F: OUTPUT PULSE FREQUENCY, P: MOTOR LOGARITHM, N: MOTOR SPEED. BECAUSE THE SIGNAL FREQUENCY FOR THREE TIMES, SO MEASURE SPEED REDUCTION.
- (5). 報警輸出ALARM OUTPUT
驅動器報警輸出: 該端口報警時, 該端口與GND導通 (低電平), 同時驅動器自行停止工作, 處於報警狀態。 DRIVE ALARM OUTPUT: WHEN THE PORT ALARM, THE SIDE WITH THE GND CONDUCTION (LOW LEVEL), THE DRIVE TO STOP WORKING AT THE SAME TIME, IN A STATE OF ALARM.

▶ 接線圖 THE WIRING DIAGRAM



▶ 安裝尺寸圖 INSTALLATION SIZE CHART



▶ 驱动器使用方法及注意事项 DRIVES USE METHOD AND MATTERS NEEDING ATTENTION

- A. 本驅動器適配電機為三相直流無刷電機。 THIS ADAPTATION MOTOR DRIVE FOR THE THREE-PHASE BRUSHLESS DC MOTOR.
- B. 按照圖示方法, 正確連接電機繞組線, 霍爾信號線及電源線, 注意UVW三相的順序。 ACCORDING TO THE GRAPHIC METHOD, THE CORRECT CONNECTION OF MOTOR WINDING LINE, THE HALL SIGNAL LINES AND POWER CORD, PAY ATTENTION TO THE SALE OF THREE PHASE SEQUENCE.
- C. 電機方向的正反, 需依靠正反轉控制端子F/R進行控制, 不能像非同步電機那樣通過改變接線實現正反轉, 不正確的接線會導致電機運轉不正常。 MOTOR IN THE DIRECTION OF POSITIVE AND NEGATIVE, NEED TO RELY ON POSITIVE & NEGATIVE CONTROL TERMINAL TO CONTROL, THE F/R NOT LIKE ASYNCHRONOUS MOTOR BY CHANGING THE WIRING ACHIEVE POSITIVE & NEGATIVE. CAN LEAD TO INCORRECT WIRING IS ABNORMAL MOTOR.
- D. AC電源要正確連接。 AC POWER TO CORRECT CONNECTION.



► 產品說明 PRODUCT DESCRIPTION

BLD-70 直流無刷電機驅動器是本公司自主研發完成的，針對小功率低壓直流無刷電機驅動的高科技產品。該直流無刷電機驅動器採用性價比極高的低成本解決方案，主要應用於各類自動化控制設備，如傳送設備、醫療設備、包裝機械、食品機械、健身設備、教學設備、園林機械等諸多領域。本驅動器適用於功率為70W的三相正弦波直流無刷電機的轉速調節，可提供外接電位器調速，外部模擬電壓調速，同時該驅動器具備大轉矩啟動，快速啟動及制動、正反轉切換，手動及自動調速相結合，希望我們產品優秀的性價比可以幫助您成功地完成運動控制專案。
 主要應用：適合各種中小型自動化設備和儀器，例如：點膠機，打標機，切割機，鐳射照排，繪圖儀，數控機床，自動裝配設備等。
 主要應用：適合各種中小型自動化設備和儀器，例如：點膠機，打標機，切割機，鐳射照排，繪圖儀，數控機床，自動裝配設備等。

THE MODEL OF BRUSHLESS DC MOTOR DRIVE IS SUITABLE FOR USE IN POWER FOR 750 VA AND UNDER HIGH PRESSURE THREE-PHASE BRUSHLESS DC MOTOR ADOPTS ADVANCED DSP CONTROL TECHNOLOGY, THIS PRODUCT DESIGN WITH LARGE TORQUE, LOW NOISE, LOW VIBRATION, SUCH AS RAPID START-UP CHARACTERISTICS AND PID CURRENT AND SPEED CLOSED LOOP CONTROL, OVERVOLTAGE, UNDERVOLTAGE, OVER CURRENT, OVER TEMPERATURE PROTECTION FUNCTION, REALIZED THE MANUAL ANALOG VOLTAGE REGULATING SPEED, SPEED REGULATION AND THE UPPER MACHINE PC PULSE FREQUENCY SPEED REGULATION OF PERFECT AND UNIFIED. WITH RS232 COMMUNICATION CONTROL FUNCTION (OPTIONAL) AT THE SAME TIME, THE CUSTOMER CAN CHOOSE THE COMPANY DISPLAY CONTROL PANEL BLDD-01 TO MOTOR PARAMETER AND RUNNING STATE CONTROL, ALSO CAN ACCORDING TO THE PRODUCTS PROVIDED BY RS232 COMMUNICATION PROTOCOL INDEPENDENT HOST CONTROLLER IS DESIGNED FOR MOTOR CONTROL.

► 產品特點 PRODUCT FEATURES

- 模擬量調速 ANALOG CONTROL OF MOTOR SPEED
- 可採用手動調速方式（自帶電位器，也可外接電位器手動調速）CAN USE MANUAL CONTROL METHODS (BUILT-IN POTENTIOMETER, ALSO CAN BE AN EXTERNAL POTENTIOMETER MANUAL CONTROL OF MOTOR SPEED)
- 啟動停止控制 START STOP CONTROL
- 正反轉控制 AND REVERSING CONTROL
- 高速度矩輸出平穩，轉速穩定 HIGH SPEED SMOOTH TORQUE OUTPUT, SPEED STABILITY
- 過流、過壓、欠壓、堵轉、霍爾信號非法保護 OVER-CURRENT, OVER-VOLTAGE, UNDER-VOLTAGE, LOCKED-ROTOR, HALL SIGNAL ILLEGALLY PROTECTION
- 具有剎車制動功能 WITH FUNCTIONS OF BRAKING

接線定義 WIRING DEFINITION

標示(MARK)	定義(DEFINE)
DC+/DC-	直流電壓輸入端 (DC12V/DC24V) DC VOLTAGE INPUT
U, V, W	電機相線MOTOR PHASE LINE
HU, HV, HW	霍爾信號線HALL SIGNAL LINES
VCC	霍爾電源+ HALL POWER +
DC-	霍爾電源- HALL POWER -
SV	外部電位器接線端 (詳見速度調節說明) AN EXTERNAL POTENTIOMETER TERMINAL (SEE NOTE SPEED REGULATION)
F/R	方向：F/R與DC-斷開電機正轉，閉合為轉DIRECTION: F/R WITH DC - DISCONNECT THE MOTOR FORWARD, CLOSE TO TURN
BRK	快速剎車：BRK與DC-端閉合為運行，斷開為剎車FAST BRAKE: BRK AND CLOSED TO RUN THE DC - END, DISCONNECT FOR THE BRAKE

參數 (PARAMETER)	MIN	RATED	MAX	UNIT
環境溫度 ENVIRONMENT TEMPERATURE	-20		60	° C
輸入電壓(AC) INPUT VOLTAGE (AC)	12		24	V
輸出電流 OUTPUT CURRENT		3	5	A
適用電機轉速 FOR MOTOR SPEED	0		20000	RPM
霍爾信號電壓 HALL VOLTAGE SIGNAL		6.5		V
霍爾驅動電流 HALL DRIVE CURRENT		20		MA
外接調速電位器 EXTERNAL CONTROL POTENTIOMETER		10K		Ω

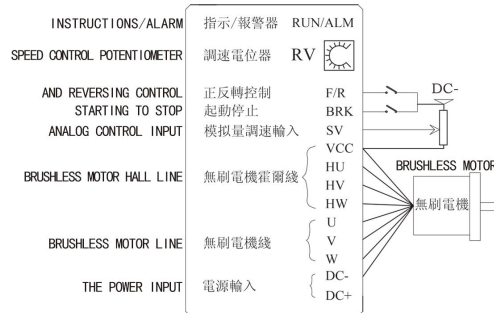
電氣參數 ELECTRICAL PARAMETERS

► 保養与调速说明注意事项 MAINTENANCE AND CONTROL OF MOTOR SPEED CONSIDERATIONS

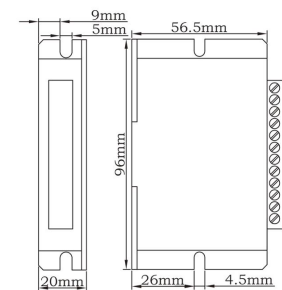
冷卻方式COOLING WAY	風冷卻THE WIND COOLING
使用場合USE OCCASIONS	避免粉塵 油污及腐蝕性物體AVOID DUST POLLUTION AND CORROSIVE OBJECTS
使用溫度USE OF TEMPERATURE	-10° ~+50°
環境濕度ENVIRONMENTAL HUMIDITY	<80%RH 不凝露 不結霜 RH GEL FROSTING
震動VIBRATION	最大不超過5.7M/S2MAXIMUM OF NO MORE THAN 5.7 M/S2
保存SAVE	-20° ~+125° 避免灰塵 最好使用原包裝AVOID DUST IT IS BEST TO USE THE ORIGINAL PACKAGING
絕緣電阻INSULATION RESISTANCE:	常溫常壓下>500MΩ > 500 M Ω UNDER ATMOSPHERIC PRESSURE

1. 使用內部電位器 RV 進行電機轉速調節： USING INTERNAL POTENTIOMETER RV FOR MOTOR SPEED ADJUSTMENT:
2. 使用外部電位器調速時（電位器中心抽頭接SV，一端接VCC，另一端接DC-）（內部電位器逆時針調到最小） WHEN USING EXTERNAL POTENTIOMETER CONTROL (VCC POTENTIOMETER CENTER TAP THE SV, END, ON THE OTHER SIDE BY DC -) (INTERNAL POTENTIOMETER COUNTERCLOCKWISE TO MINIMUM)
3. 使用外部0~5V模擬電壓輸入進行電機轉速調節：（內部電位器逆時針調到最小） USING EXTERNAL 0 ~ 5 V ANALOG VOLTAGE INPUT FOR MOTOR SPEED ADJUSTMENT: (INTERNAL POTENTIOMETER COUNTERCLOCKWISE TO MINIMUM)
4. 接線注意事項：注意電機UVW三相的接線順序以及霍爾信號線的UVW及電源線的接線順序WIRING NOTE: NOTE THAT THE SEQUENCE OF WIRING UVW THREE-PHASE MOTOR AND SALE OF HALL SIGNAL LINES AND THE CONNECTION SEQUENCE OF THE POWER CORD

► 接線圖 WIRING DIAGRAM

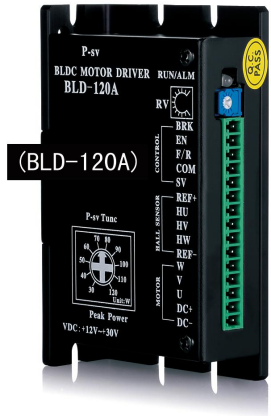


► 安裝尺寸圖 INSTALLATION SIZE CHART



► 驱动器使用方法及注意事项 DRIVES USE METHOD AND MATTERS NEEDING ATTENTION

- A. 本驅動器適配電機為DC24V以下的三相直流無刷電機。THIS ADAPTER FOR DC24V MOTOR DRIVE UNDER THREE-PHASE BRUSHLESS DC MOTOR
- B. 按照圖示方法，正確連接電機繞組線，霍爾信號線及電源線，注意UVW三相的順序。ACCORDING TO THE GRAPHIC METHOD, THE CORRECT CONNECTION OF MOTOR WINDING LINE, THE HALL SIGNAL LINES AND POWER CORD, PAY ATTENTION TO THE SALE OF THREE PHASE SEQUENCE
- C. 電機方向的正反，需依靠正反轉控制端子F/R進行控制，不能像非同步電機那樣通過改變接線實現正反轉，不正確的接線會導致電機運轉不正常。MOTOR IN THE DIRECTION OF POSITIVE AND NEGATIVE, NEED TO RELY ON POSITIVE &NEGATIVE CONTROL TERMINAL TO CONTROL, THE F/R NOT LIKE ASYNCHRONOUS MOTOR BY CHANGING THE WIRING ACHIEVE POSITIVE &NEGATIVE, CAN LEAD TO INCORRECT WIRING IS ABNORMAL MOTOR
- D. 直流電源要正確連接。DC POWER SUPPLY IS CONNECT CORRECTLY



接線定義 WIRING DEFINITION

標示(MARK)	定義(DEFINE)
DC+/DC-	直流電壓輸入端 (DC12V~DC30V) DC VOLTAGE INPUT
U, V, W	電機相線 MOTOR PHASE LINE
HU, HV, HW	霍爾信號線 HALL SIGNAL LINES
REF+	霍爾電源+ HALL POWER +
REF-	霍爾電源- HALL POWER -
SV	外接調速, 使用內部調速時懸空。注① EXTERNAL CONTROL, DANGLING WHEN USING INTERNAL CONTROL. NOTE 1.
COM	公共端口 (低電平) THE PUBLIC PORT (LOW LEVEL)
F/R	方向, 懸空或高電平時為正轉, 低電平反轉。注②FOR THE FORWARD DIRECTION, SUSPENDED OR HIGH LEVELS, LOW-LEVEL INVERSION NOTE 2.
EN	控制信號使能端 高電平停車, 低電平運行注②PARKING CONTROL SIGNAL CAN MAKE THE HIGH LEVEL, LOW LEVEL RUNNING NOTE 2.
BRK	剎車, 高電平時為正常工作, 低電平停機。注②BRAKE, HIGH ELECTRICITY AT ORDINARY TIMES AS NORMAL WORK, LOW LEVEL DOWN NOTE 2.

注①: 支持外接10K電位器或模擬電壓調速。當外接電位器時, 內部電位器逆時針旋轉最底部; 當外接模擬電壓時, COM為參考地, SV為模擬電壓輸入信號, NOTE 1: SUPPORT EXTERNAL 10 K Ω ANALOG VOLTAGE SPEED CONTROL POTENTIOMETER WHEN AN EXTERNAL POTENTIOMETER, INTERNAL POTENTIOMETER COUNTERCLOCKWISE THE BOTTOM.WHEN THE EXTERNAL ANALOG VOLTAGE, COM FOR REFERENCE, THE SV AS THE ANALOG INPUT VOLTAGE SIGNAL.
 注②: 此信號具有5mA以上驅動吸收能力, BRK為使能剎車控制, 斷開時為待機狀態, 閉合時為待機狀態, EN為使能控制, 閉合時為待機狀態, 斷開時為待機狀態, F/R電機方向控制, 斷開時電機正轉, 閉合時電機反轉。NOTE 2: THIS SIGNAL SHOULD BE MORE THAN 5 MA DRIVEN ABSORPTION CAPACITY, BRK CAN IN ORDER TO MAKE THE BRAKE CONTROL, DISCONNECT OPERATION STATE, AS THE STANDBY MODE, WHEN CLOSED, EN CAN TO MAKE THE CONTROL, CLOSED OPERATION, DISCONNECTED FOR STANDBY, MOTOR CONTROL, THE F/R IS A DISCONNECTED MOTOR, MOTOR REVERSAL WHEN CLOSED.

▶ 產品說明 PRODUCT DESCRIPTION

BLD-120A 直流無刷電機驅動器是本公司自主研發完成的, 針對中功率低壓直流無刷電機驅動的高科技產品。該直流無刷電機驅動器採用性價比極高的低成本解決方案, 主要應用於各類自動化控制設備, 如傳送設備、醫療設備、包裝機械、食品機械、健身設備、教學設備、園林機械等諸多領域。本驅動器適用於功率為125W三相正弦波直流無刷電機的轉速調節, 可提供外接電位器調速, 外部模擬電壓調速, 上位機 (PLC, 單片機等) PWM頻率調速等功能。同時該驅動器具備大轉矩啟動, 快速啟動及制動、正反轉切換, 手動及自動調速功能。

主要應用: 適合各種中小型自動化設備和儀器, 例如: 點膠機, 打標機, 切割機, 鑄射線排, 繡圖儀, 數控機床, 自動裝配設備等。
 BLD-120-A BRUSHLESS DC MOTOR DRIVE IS DONE BY THE COMPANY INDEPENDENT RESEARCH AND DEVELOPMENT, AIMING AT THE LOW VOLTAGE POWER BRUSHLESS DC MOTOR DRIVE HIGH-TECH PRODUCTS. THE BRUSHLESS DC MOTOR DRIVE WITH HIGH COST PERFORMANCE, LOW COST SOLUTION, MAINLY APPLIED TO ALL KINDS OF AUTOMATION CONTROL EQUIPMENT, SUCH AS TRANSMISSION EQUIPMENT, MEDICAL EQUIPMENT, PACKAGING MACHINERY, FOOD MACHINERY, FITNESS EQUIPMENT, TEACHING EQUIPMENT, GARDEN MACHINERY, AND MANY OTHER FIELDS. THIS DRIVE IS SUITABLE FOR THE POWER OF 125 W BRUSHLESS DC MOTOR SPEED ADJUSTING, THREE-PHASE SINE WAVE CAN PROVIDE AN EXTERNAL POTENTIOMETER CONTROL, EXTERNAL ANALOG VOLTAGE CONTROL, PC (SUCH AS PLC, SCM) PWM FREQUENCY CONTROL OF MOTOR SPEED, AND OTHER FUNCTIONS. AT THE SAME TIME THE DRIVE HAVE LARGE STARTING TORQUE, QUICK START AND BRAKE AND POSITIVE & NEGATIVE SWITCHING, MANUAL AND AUTOMATIC.
 MAIN APPLICATIONS: SUITABLE FOR ALL KINDS OF SMALL AND MEDIUM-SIZED AUTOMATION EQUIPMENT AND INSTRUMENTS, SUCH AS DISPENSING

▶ 產品特點 PRODUCT FEATURES

可應用於上位機 (PLC或單片機等) PWM頻率或模擬量調速	CAN BE APPLIED TO THE UPPER MACHINE (PLC AND SINGLE-CHIP MICROCOMPUTER, ETC.) OR ANALOG PWM FREQUENCY CONTROL OF MOTOR SPEED
可採用手動調速方式 (自帶電位器, 也可外接電位器手動調速)	CAN USE MANUAL CONTROL METHODS (BUILT-IN POTENTIOMETER, ALSO CAN BE AN EXTERNAL POTENTIOMETER MANUAL CONTROL OF MOTOR SPEED)
啟動停止控制	START STOP CONTROL
正反轉控制	AND REVERSING CONTROL
超載保護設定: P-SV可設定不同功率的電機保護參數	OVERLOAD PROTECTION SETTING: P - SV CAN SET DIFFERENT POWER OF MOTOR PROTECTION PARAMETERS
高速度矩輸出平穩, 轉速穩定	HIGH SPEED SMOOTH TORQUE OUTPUT, SPEED STABILITY
過流、過壓、欠壓、堵轉、霍爾信號非法、溫度保護	OVER-CURRENT, OVER-VOLTAGE, UNDER-VOLTAGE, LOCKED-ROTOR, ILLEGAL HALL SIGNAL, TEMPERATURE PROTECTION
欠電壓 (≤10V)、過熱 (>95°C) 自動保護	UNDER VOLTAGE (10 V OR LESS), OVERHEATING AUTOMATIC PROTECTION (> 95 °C)
具有剎車制動功能,	WITH FUNCTIONS OF BRAKING



參數 (PARAMETER)	MIN	RATED	MAX	UNIT
環境溫度 ENVIRONMENT TEMPERATURE	-30		60	° C
輸入電壓 (AC) INPUT VOLTAGE (AC)	10		24	V
輸出電流 OUTPUT CURRENT		8	30	A
適用電機轉速 FOR MOTOR SPEED	0		20000	RPM
霍爾信號電壓 HALL VOLTAGE SIGNAL	4.5	5	5.5	V
霍爾驅動電流 HALL DRIVE CURRENT		20		MA
外接調速電位器 EXTERNAL CONTROL POTENTIOMETER		10K		Ω

▶ 保養與調速說明注意事項 MAINTENANCE AND CONTROL OF MOTOR SPEED CONSIDERATIONS

冷卻方式 COOLING WAY	風冷卻 THE WIND COOLING
使用場合 USE OCCASIONS	避免粉塵 油污及腐蝕性物體 AVOID DUST POLLUTION AND CORROSIVE OBJECTS
使用溫度 USE OF TEMPERATURE	-10° ~ +50°
環境濕度 ENVIRONMENTAL HUMIDITY	<80%RH 不凝露 不結霜 RH GEL FROSTING
震動 VIBRATION	最大不超過 5.7M/S2 MAXIMUM OF NO MORE THAN 5.7 M/S2
保存 SAVE	-20° ~ +125° 避免灰塵 最好使用原包裝 AVOID DUST IT IS BEST TO USE THE ORIGINAL PACKAGING
絕緣電阻 INSULATION RESISTANCE:	常溫常壓下 >500MΩ > 500 M Ω UNDER ATMOSPHERIC PRESSURE

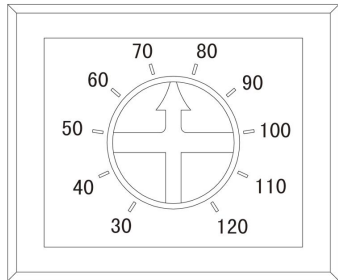
1. 使用內部電位器 RV 進行電機轉速調節 USING INTERNAL POTENTIOMETER RV FOR MOTOR SPEED ADJUSTMENT.
2. 使用外部電位器調速時 (電位器中心抽頭接SV, 一端接REF+, 另一端接COM) (內部電位器逆時針旋轉最底部) WHEN USING EXTERNAL POTENTIOMETER CONTROL (SV POTENTIOMETER CENTER TAP, REF + END, ON THE OTHER SIDE BY COM) (INTERNAL POTENTIOMETER BOTTOM COUNTERCLOCKWISE).
3. 使用外部0~5V模擬電壓輸入進行電機轉速調節: (內部電位器逆時針旋轉最底部) USE EXTERNAL 0 ~ 5 V ANALOG VOLTAGE INPUT FOR MOTOR SPEED ADJUSTMENT: INTERNAL POTENTIOMETER COUNTERCLOCKWISE (THE BOTTOM).
4. 使用外部PWM輸入進行電機轉速調節: 脈衝占空比10%~90%, 速度線性調節. 脈衝頻率: 1K~10KHz, 脈衝幅值: 5V (內部電位器逆時針旋轉最底部) THE USE OF EXTERNAL PWM MOTOR SPEED ADJUSTING INPUT: PULSE DUTY RATIO FROM 10% TO 90%, LINEAR SPEED REGULATION. PULSE FREQUENCY: 1 K - 10 KHZ, PULSE AMPLITUDE: 5 V (INTERNAL POTENTIOMETER BOTTOM COUNTERCLOCKWISE).
5. 接線注意事項: 注意電機UVW三相的接線順序以及霍爾信號線的UVW及電源線的接線順序 WIRING NOTE: NOTE THAT THE SEQUENCE OF WIRING UVW THREE-PHASE MOTOR AND SALE OF HALL SIGNAL LINES AND THE CONNECTION SEQUENCE OF THE POWER CORD.

▶ 接口功能說明 INTERFACE FUNCTION DESCRIPTION

- (1) 電機運行/停止控制 (EN) THE MOTOR RUN/STOP CONTROL (EN)
 控制端子EN相對COM的通斷可以控制電機的運行和停止。當與COM端子接通時電機運行, 反之電機停止運行。CONTROL TERMINAL EN RELATIVE COM ON-OFF CAN CONTROL MOTOR RUNNING AND STOP. WHEN CONNECT COM TERMINAL WITH THE MOTOR RUNNING, VICE MOTOR TO STOP RUNNING.
- (2) 電機正/反轉控制 (F/R) MOTOR IS/INVERSION OF CONTROL (F/R)
 控制F/R與COM的通斷可以控制運轉方向。當F/R與COM不接通時, 電機順時針運行, 反之則電機逆時針方向運轉。F/R CONTROL AND ON-OFF CAN CONTROL THE RUNNING DIRECTION OF COM. WHEN F/R AND COM IS NOT CONNECTED, MOTOR CLOCKWISE OPERATION, MOTOR CONVERSELY COUNTER CLOCKWISE.
- (3) 制動停機 (BRK) BRAKE DOWN
 控制BRK與COM的通斷可以制動停機。當控制BRK與COM斷開時, 電機運行, 閉合時制動停止, 制動停機比自然停機快, 具體停機時間與用戶系統的負載慣量有關。BRK CONTROL ON-OFF CAN BRAKE DOWN WITH COM. WHEN THE CONTROL BRK AND COM DISCONNECTED, THE MOTOR RUNNING, THE BRAKE TO STOP, WHEN CLOSED BRAKING DOWN FASTER THAN NATURAL DOWNTIME, SPECIFIC DOWNTIME ASSOCIATED WITH THE LOAD MOMENT OF INERTIA OF THE USER'S SYSTEM.

▶ 功率設定 POWER SETTING

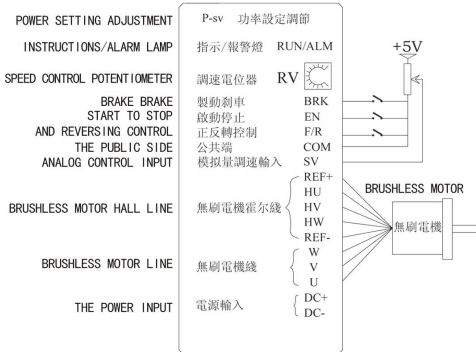
P-sv Tune Unit:W



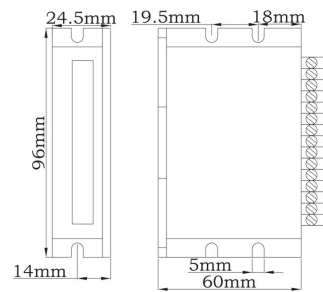
注：為防止電機長時間超功率運行從而損壞電機，請按照上圖所示數值結合所配電機功率進行正確設定。當負載發生較大變化並導致電機實際運行功率超過設定值時，驅動器將進入自動保護模式。

NOTE: TO PREVENT ELECTRIC PILOT TIME TO SUPER POWER OPERATION AND DAMAGE TO THE MOTOR, PLEASE ACCORDING TO THE ABOVE NUMERICAL COMBINATION OF MOTOR POWER PROPERLY SET. AND LEADS TO GREAT CHANGES HAVE TAKEN PLACE WHEN THE LOAD MOTOR OPERATION POWER MORE THAN THE SET VALUE, WILL DRIVE INTO THE AUTOMATIC PROTECTION MODE.

▶ 接線圖 WIRING DIAGRAM



▶ 安裝尺寸圖 INSTALLATION SIZE CHART



▶ 驅動器使用方法及注意事項 DRIVES USE METHOD AND MATTERS NEEDING ATTENTION

- 本驅動器適配電機為DC24V以下的三相直流無刷電機。THIS ADAPTER FOR DC24V MOTOR DRIVE UNDER THREE-PHASE BRUSHLESS DC MOTOR
- 按照圖示方法，正確連接電機繞組線，霍爾信號線及電源線，注意UVW三相的順序。ACCORDING TO THE GRAPHIC METHOD, THE CORRECT CONNECTION OF MOTOR WINDING LINE, THE HALL SIGNAL LINES AND POWER CORD, PAY ATTENTION TO THE SALE OF THREE PHASE SEQUENCE
- 電機方向的正反，需依靠正反轉控制端子F/R進行控制，不能像非同步電機那樣通過改變接線實現正反轉，不正確的接線會導致電機運轉不正常。MOTOR IN THE DIRECTION OF POSITIVE AND NEGATIVE, NEED TO RELY ON POSITIVE & NEGATIVE CONTROL TERMINAL TO CONTROL, THE F/R NOT LIKE ASYNCHRONOUS MOTOR BY CHANGING THE WIRING ACHIEVE POSITIVE & NEGATIVE, CAN LEAD TO INCORRECT WIRING IS ABNORMAL MOTOR
- 功率保護設定：從驅動器的參數設定表上選擇最接近電機額定功率的P-SV設定值，將電位器旋轉到相應位置。PARAMETER SETTING IN THE DRIVE POWER PROTECTION SETTING: TABLE CHOOSE THE MOST CLOSE TO THE MOTOR RATED POWER P - SV VALUE, ROTATE THE POTENTIOMETER TO THE CORRESPONDING POSITION
- 直流電源要正確連接。DC POWER SUPPLY IS CONNECT CORRECTLY

接線定義 WIRING DEFINITION

標示(MARK)	定義 (DEFINE)
DC+/DC-	直流電壓輸入端 (DC24V~DC48V) DC VOLTAGE INPUT
U, V, W	電機相線 MOTOR PHASE LINE
HU, HV, HW	霍爾信號線 HALL SIGNAL LINES
REF+	霍爾電源+ HALL POWER +
REF-	霍爾電源- HALL POWER -
SV	外接調速, 使用內部調速時懸空。注① EXTERNAL CONTROL, DANGLING WHEN USING INTERNAL CONTROL. NOTE 1.
COM	公共端口 (低電平) THE PUBLIC PORT (LOW LEVEL)
F/R	方向, 懸空或高電平時為正轉, 低電平反轉 注②FOR THE FORWARD DIRECTION, SUSPENDED OR HIGH LEVELS, LOW-LEVEL INVERSION NOTE (2)
EN	控制信號使能端 高電平停車, 低電平運行注②PARKING CONTROL SIGNAL CAN MAKE THE HIGH LEVEL, LOW LEVEL RUNNING NOTE (2)
BRK	剎車, 低電平時為正常工作, 高電平停機 注②BRAKE. LOW ELECTRICITY AT ORDINARY TIMES WORKING FOR NORMAL, HIGH LEVEL DOWN NOTE (2)
SPEED	速度信號輸出端SPEED SIGNAL OUTPUT TERMINAL
ALARM	警告信號輸出端WARNING SIGNAL OUTPUT TERMINAL

注①: 支持外接10K電位器或模擬電壓調速, 當外接電位器RV開掉, 內部電位器RV開掉, 當外接模擬電壓時, COM為參考地, SV為模擬電壓輸入信號NOTE 1: SUPPORT EXTERNAL 10 K POTENTIOMETER OR ANALOG VOLTAGE CONTROL. WHEN AN EXTERNAL POTENTIOMETER, INTERNAL POTENTIOMETER RV SHUT OFF; WHEN THE EXTERNAL ANALOG VOLTAGE, COM FOR REFERENCE, THE SV FOR ANALOG VOLTAGE INPUT SIGNAL

注②: 此信號需有5mA以上驅動吸收能力, BRK為使能剎車控制, 閉合運行狀態, 斷開時為待機狀態, EN為使能控制, 閉合運行狀態, 斷開時為待機狀態, F/R電機方向控制, 斷開時電機正轉, 閉合時電機反轉。NOTE 2: THIS SIGNAL SHOULD BE MORE THAN 5 MA DRIVEN ABSORPTION CAPACITY, BRK CAN IN ORDER TO MAKE THE BRAKE CONTROL, CLOSED OPERATION, DISCONNECTED FOR STANDBY, EN CAN TO MAKE THE CONTROL, CLOSED OPERATION, DISCONNECTED FOR STANDBY, MOTOR CONTROL, THE F/R IS A DISCONNECTED MOTOR, MOTOR REVERSAL WHEN CLOSED.



▶ 產品說明 PRODUCT DESCRIPTION

BLD-300B 直流無刷電機驅動器是本公司自主研發完成的, 針對中功率低壓直流無刷電機驅動的高科技產品。該直流無刷電機驅動器採用性價比極高的低成本解決方案, 主要應用於各類自動化控制設備, 如傳送設備、醫療設備、包裝機械、食品機械、健身設備、教學設備、園林機械等諸多領域。本驅動器適用於功率為48V440W, 24V300W的三相正弦波直流無刷電機的轉速調節, 可提供外接電位器調速, 上位機 (PLC, 單片機等) PWM頻率調速等功能。同時該驅動器具備大轉矩啟動, 快速啟動及制動、正反轉切換, 手動及自動調速相結合, 異常報警信號輸出等特點。

主要應用: 適合各種中小型自動化設備和儀器, 例如: 點膠機, 打標機, 切割機, 鐳射排排, 繪圖儀, 數控機床, 自動裝配設備等。
BLD - 300 - B BRUSHLESS DC MOTOR DRIVE IS DONE BY THE COMPANY INDEPENDENT RESEARCH AND DEVELOPMENT, AIMING AT THE LOW VOLTAGE POWER BRUSHLESS DC MOTOR DRIVE HIGH-TECH PRODUCTS. THE BRUSHLESS DC MOTOR DRIVE WITH HIGH COST PERFORMANCE, LOW COST SOLUTION, MAINLY APPLIED TO ALL KINDS OF AUTOMATION CONTROL EQUIPMENT, SUCH AS TRANSMISSION EQUIPMENT, MEDICAL EQUIPMENT, PACKAGING MACHINERY, FOOD MACHINERY, FITNESS EQUIPMENT, TEACHING EQUIPMENT, GARDEN MACHINERY, AND MANY OTHER FIELDS. THIS DRIVE IS SUITABLE FOR THE POWER OF 48 V440W, 24 V300W THREE-PHASE SINE WAVE OF BRUSHLESS DC MOTOR SPEED REGULATION, CAN PROVIDE AN EXTERNAL POTENTIOMETER CONTROL, EXTERNAL ANALOG VOLTAGE CONTROL, PC (SUCH AS PLC, SCM) PWM FREQUENCY CONTROL OF MOTOR SPEED, AND OTHER FUNCTIONS. AT THE SAME TIME THE DRIVE HAVE LARGE STARTING TORQUE, QUICK START AND BRAKE AND POSITIVE & NEGATIVE SWITCHING, MANUALLY MAIN APPLICATIONS: SUITABLE FOR ALL KINDS OF SMALL AND MEDIUM-SIZED AUTOMATION EQUIPMENT AND INSTRUMENTS, SUCH AS DISPENSING MACHINE, MARKING MACHINE, CUTTING MACHINE, LASER TYPESETTING, PLOTTER, NC MACHINE TOOLS, AUTOMATIC ASSEMBLY EQUIPMENT, ETC

▶ 產品特點 PRODUCT FEATURES

- 可應用於上位機 (PLC或單片機等) PWM頻率或模擬量調速 CAN BE APPLIED TO THE UPPER MACHINE (PLC AND SINGLE-CHIP MICROCOMPUTER, ETC.) OR ANALOG PWM FREQUENCY CONTROL OF MOTOR SPEED
- 可採用手動調速方式 (自帶電位器, 也可外接電位器手動調速) CAN USE MANUAL CONTROL METHODS (BUILT-IN POTENTIOMETER, ALSO CAN BE AN EXTERNAL POTENTIOMETER MANUAL CONTROL OF MOTOR SPEED)
- 啟動停止控制 START STOP CONTROL
- 正反轉控制 AND REVERSING CONTROL
- 超載保護設定: P-SV可設定不同功率的電機保護參數 OVERLOAD PROTECTION SETTING: P - SV CAN SET DIFFERENT POWER OF MOTOR PROTECTION PARAMETERS
- 高速度力矩輸出平穩, 轉速穩定 HIGH SPEED SMOOTH TORQUE OUTPUT, SPEED STABILITY
- 過流、過壓、欠壓、堵轉、霍爾信號非法、溫度保護 OVER-CURRENT, OVER-VOLTAGE, UNDER-VOLTAGE, LOCKED-ROTOR, ILLEGAL HALL SIGNAL, TEMPERATURE PROTECTION
- 速度信號輸出 SPEED SIGNAL OUTPUT
- 異常報警信號輸出 ABNORMAL ALARM SIGNAL OUTPUT
- 欠電壓 (≤18V)、過熱 (>95℃) 自動保護 OWE VOLTAGE (18 V OR LESS), OVERHEATING AUTOMATIC PROTECTION (> 95 °C)
- 具有剎車制動功能, WITH FUNCTIONS OF BRAKING
- 通訊功能, 控制器調速, 顯示速度, 等功能 (需另購) COMMUNICATION FUNCTION, SPEED CONTROLLER, THE FUNCTION SUCH AS DISPLAY SPEED (AVAILABLE SEPARATELY)



參數 (PARAMETER)	MIN	RATED	MAX	UNIT
環境溫度 ENVIRONMENT TEMPERATURE	-30		60	° C
輸入電壓 (AC) INPUT VOLTAGE (AC)	18	48	50	V
輸出電流 OUTPUT CURRENT			25	A
適用電機轉速 FOR MOTOR SPEED	0		20000	RPM
霍爾信號電壓 HALL VOLTAGE SIGNAL	4.5	5	5.5	V
霍爾驅動電流 HALL DRIVE CURRENT		20		MA
外接調速電位器 EXTERNAL CONTROL POTENTIOMETER		10K		Ω

▶ 保養与调速说明注意事项 MAINTENANCE AND CONTROL OF MOTOR SPEED CONSIDERATIONS

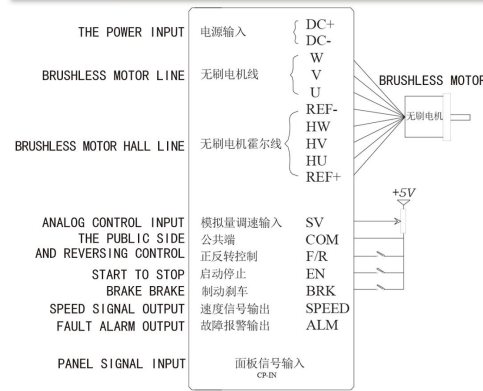
冷卻方式COOLING WAY	風冷卻THE WIND COOLING
使用場合USE OCCASIONS	避免粉塵 油污及腐蝕性物體AVOID DUST POLLUTION AND CORROSIVE OBJECTS
使用溫度USE OF TEMPERATURE	-10° ~+50°
環境濕度ENVIRONMENTAL HUMIDITY	<80%RH 不凝露 不結霜 RH GEL FROSTING
震動VIBRATION	最大不超過5.7M/S2MAXIMUM OF NO MORE THAN 5.7 M/S2
保存SAVE	-20° ~+125° 避免灰塵 最好使用原包裝AVOID DUST IT IS BEST TO USE THE ORIGINAL PACKAGING
絕緣電阻INSULATION RESISTANCE:	常溫常壓下>500M Ω > 500 M Ω UNDER ATMOSPHERIC PRESSURE

1. 使用內部電位器 RV 進行電機轉速調節 USING INTERNAL POTENTIOMETER RV FOR MOTOR SPEED ADJUSTMENT.
2. 使用外部電位器調速時 (電位器中心抽頭接SV, 一端接REF+, 另一端接COM) (內部電位器RV關閉) WHEN USING EXTERNAL POTENTIOMETER CONTROL (SV POTENTIOMETER CENTER TAP, REF + END, ON THE OTHER SIDE BY COM) (INTERNAL POTENTIOMETER RV CLOSED)
3. 使用外部0~5V模擬電壓輸入進行電機轉速調節: (內部電位器RV關閉) USING EXTERNAL 0 ~ 5 V ANALOG VOLTAGE INPUT FOR MOTOR SPEED ADJUSTMENT: (INTERNAL POTENTIOMETER RV CLOSED)
4. 使用外部0~10V模擬電壓輸入進行電機轉速調節: (內部電位器RV關閉, 適當調整SV CONTROL精密電位器, 此電位器在驅動器內部) USING EXTERNAL 0 ~ 10 V ANALOG VOLTAGE INPUT FOR MOTOR SPEED ADJUSTMENT: (INTERNAL POTENTIOMETER RV CLOSED, ADJUST THE SV CONTROL PRECISION POTENTIOMETER, THE POTENTIOMETER) INSIDE THE DRIVE
5. 使用外部PWM輸入進行電機轉速調節: 脈衝占空比10%~90%, 速度線性調節. 脈衝頻率: 1K~10KHZ, 脈衝幅值: 5V (內部電位器RV關閉) USING EXTERNAL PWM MOTOR SPEED ADJUSTING INPUT: PULSE DUTY RATIO FROM 10% TO 90%, LINEAR SPEED REGULATION. PULSE FREQUENCY: 1 K - 10 KHZ, PULSE AMPLITUDE: 5 V (INTERNAL POTENTIOMETER RV CLOSED)
6. 驅動器PID閉環控制電機快速回應設定: RESPOND QUICKLY TO SET PID CLOSED-LOOP CONTROL DRIVE MOTOR
OP/CL短接 (用戶設定): PID閉環控制—電機快速回應 SET OP/CL NIPPLE (USER): PID CLOSED-LOOP CONTROL - MOTOR QUICK RESPONSE
OP/CL斷開 (出廠設定): 無PID閉環控制—電機普通回應 THE OP/CL DISCONNECT (FACTORY SETTING): NO ORDINARY PID CLOSED-LOOP CONTROL - MOTOR RESPONSE
7. 電機轉速信號輸出: SPEED 和 COM 端可輸出速度信號 F (HZ) $N = (F/P*60) / 3$, F: 輸出脈衝頻率, P: 電機極對數. N: 電機轉速. 因為此信號進行了3倍頻, 所以測出轉速還原. MOTOR SPEED SIGNAL OUTPUT: SPEED AND COM PORT CAN BE OUTPUT SPEED SIGNAL (HZ) $N = F (F/P * 60) / 3$, F: OUTPUT PULSE FREQUENCY, P: MOTOR LOGARITHM, N: MOTOR SPEED. BECAUSE THE SIGNAL FREQUENCY FOR THREE TIMES, SO MEASURE SPEED REDUCTION.
8. 驅動器報警信號輸出: 當驅動器出現報警時, ALARM端與COM端將會導通而使ALARM端成為低電平, 同時驅動器停止工作, 報警燈閃爍 DRIVE ALARM OUTPUT: WHEN THE DRIVER APPEARED ALARM, ALARM END AND COM END CONDUCTION SO THAT THE ALARM WILL BE END TO BECOME A LOW LEVEL, DRIVE TO STOP WORKING AT THE SAME TIME, THE ALARM LIGHT FLASHING
9. 接線注意事項: 注意電機UVW三相的接線順序以及霍爾信號線的UVW及電源線的接線順序 WIRING NOTE: NOTE THAT THE SEQUENCE OF WIRING UVW THREE-PHASE MOTOR AND SALE OF HALL SIGNAL LINES AND THE CONNECTION SEQUENCE OF THE POWER CORD.

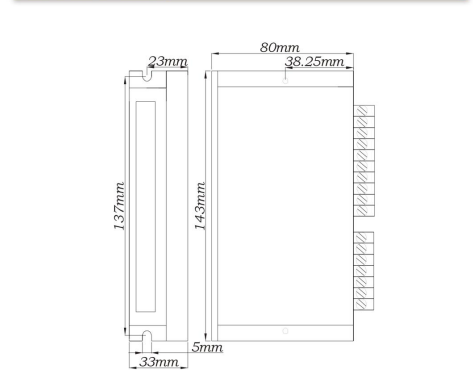
▶ 接口功能說明 INTERFACE FUNCTION DESCRIPTION

- (1). 電機運行/停止控制 (EN) THE MOTOR RUN/STOP CONTROL
控制端子EN相對COM的通斷可以控制電機的運行和停止. 當與COM端子接通時電機運行, 反之電機停止運行. CONTROL TERMINAL EN RELATIVE COM ON-OFF CAN CONTROL MOTOR RUNNING AND STOP. WHEN CONNECT COM TERMINAL WITH THE MOTOR RUNNING, VICE MOTOR TO STOP RUNNING.
- (2). 電機正/反轉控制 (F/R) THE MOTOR IS/INVERSION OF CONTROL
控制F/R與COM的通斷可以控制運轉方向. 當F/R與COM不接通時, 電機順時針運行, 反之則電機逆時針方向運轉. F/R CONTROL AND ON-OFF CAN CONTROL THE RUNNING DIRECTION OF COM. WHEN F/R AND COM IS NOT CONNECTED, MOTOR CLOCKWISE OPERATION, MOTOR CONVERSELY COUNTERCLOCKWISE.
- (3). 制動停機 (BRK) BRAKE DOWN
控制BRK與COM的通斷可以制動停機. 當控制BRK與COM接通時, 電機運行, 斷開時制動停止, 制動停機比自然停機快, 具體停機時間與用戶系統的負載慣量有關. BRK CONTROL ON-OFF CAN BRAKE DOWN WITH COM. WHEN THE CONTROL BRK WHEN CONNECTED WITH COM, AND THE MOTOR RUNNING, DISCONNECT THE BRAKE TO STOP, BRAKE DOWN FASTER THAN NATURAL DOWNTIME, SPECIFIC DOWNTIME ASSOCIATED WITH THE LOAD MOMENT OF INERTIA OF THE USER'S SYSTEM.
- (4). 電機轉速信號輸出 (SPEED) MOTOR SPEED SIGNAL OUTPUT
電機轉速信號輸出: SPEED 和 COM 端可輸出速度信號 F (HZ) $N = (F/P*60) / 3$, F: 輸出脈衝頻率, P: 電機極對數. N: 電機轉速. 因為此信號進行了3倍頻, 所以測出轉速還原. MOTOR SPEED SIGNAL OUTPUT: SPEED AND COM PORT CAN BE OUTPUT SPEED SIGNAL (HZ) $N = F (F/P * 60) / 3$, F: OUTPUT PULSE FREQUENCY, P: MOTOR LOGARITHM, N: MOTOR SPEED. BECAUSE THE SIGNAL FREQUENCY FOR THREE TIMES, SO MEASURE SPEED REDUCTION.
- (5). 報警輸出ALARM OUTPUT
驅動器報警輸出: 該端口報警時, 該端與GND導通 (低電平), 同時驅動器自行停止工作, 處於報警狀態. DRIVE ALARM OUTPUT: WHEN THE PORT ALARM, THE SIDE WITH THE GND CONDUCTION (LOW LEVEL), THE DRIVE TO STOP WORKING AT THE SAME TIME, IN A STATE OF ALARM.

▶ 接線圖 THE WIRING DIAGRAM



▶ 安裝尺寸圖 INSTALLATION SIZE CHART



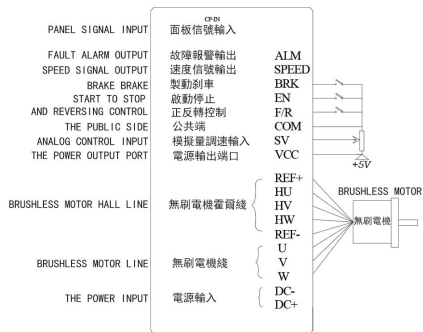
▶ 驱动器使用方法及注意事项 DRIVES USE METHOD AND MATTERS NEEDING ATTENTION

- A. 本驅動器適配電機為DC48V以下的三相直流無刷電機. THIS ADAPTATION MOTOR DRIVE FOR THE FOLLOWING DC48V THREE-PHASE BRUSHLESS DC MOTOR
- B. 按照圖示方法, 正確連接電機繞組線, 霍爾信號線及電源線, 注意UVW三相的順序. ACCORDING TO THE GRAPHIC METHOD, THE CORRECT CONNECTION OF MOTOR WINDING LINE, THE HALL SIGNAL LINES AND POWER CORD. PAY ATTENTION TO THE SALE OF THREE PHASE SEQUENCE
- C. 電機方向的正反, 需依靠正反轉控制端子F/R進行控制, 不能像非同步電機那樣通過改變接線實現正反轉, 不正確的接線會導致電機運轉不正常. MOTOR IN THE DIRECTION OF POSITIVE AND NEGATIVE, NEED TO RELY ON POSITIVE & NEGATIVE CONTROL TERMINAL TO CONTROL, THE F/R NOT LIKE ASYNCHRONOUS MOTOR BY CHANGING THE WIRING ACHIEVE POSITIVE & NEGATIVE, CAN LEAD TO INCORRECT WIRING IS ABNORMAL MOTOR
- D. 功率保護設定: 從驅動器的參數設定表上選擇最接近電機額定功率的P-sv設定值, 將電位器旋轉到相應位置 PARAMETER SETTING IN THE DRIVE POWER PROTECTION SETTING: TABLE CHOOSE THE MOST CLOSE TO THE MOTOR RATED POWER P - SV VALUE, ROTATE THE POTENTIOMETER TO THE CORRESPONDING POSITION
- E. 電機霍爾角度設定: 針對不同霍爾角度的電機, 選擇正確的SW2位置. 不正確的設置會導致電機動作異常 (需控制器). MOTOR HALL ANGLE SETTING: ACCORDING TO THE DIFFERENT ANGLE OF MOTOR HALL, CHOOSING THE RIGHT POSITION OF SW2. INCORRECT SETTING CAN LEAD TO ABNORMAL MOTOR MOVEMENTS (CONTROLLER)
- F. 電機磁極數設定: 用於設定4極和8極電機的使用. 不正確的設置會導致電機動作異常或速度顯示不正確 (需控制器) MOTOR MAGNETIC POLE NUMBER SET, IS USED TO SET THE USE OF 4 AND 8 POLE MOTOR. INCORRECT SETTING CAN LEAD TO ABNORMAL MOTOR MOVEMENTS OR SPEED DISPLAY INCORRECTLY (CONTROLLER)
- G. 直流電源要正確連接. Dc power supply is connect correctly.
- H. 本款驅動器另配有速度顯示與設置裝置, 可對電機速度及加減速時間等進行設定, 如需要需另行購買 (具體用法詳見速度設定裝置說明書) THIS DRIVES THE OTHER IS EQUIPPED WITH SPEED DISPLAY AND SET UP THE DEVICE, CAN THE MOTOR SPEED AND DECELERATION TIME SETTINGS, SUCH AS THE NEED TO BUY SEPARATELY USAGE (FOR MORE INFORMATION ON SPEED SETTING DEVICE SPECIFICATION)

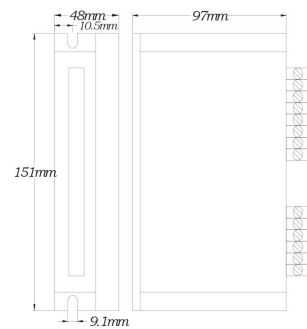
▶ 接口功能說明 INTERFACE FUNCTION DESCRIPTION

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控制端子EN相對COM的通斷可以控制電機的運行和停止。當與COM端子接通時電機運行，反之電機停止運行。CONTROL TERMINAL EN RELATIVE COM ON-OFF CAN CONTROL MOTOR RUNNING AND STOP. WHEN CONNECT COM TERMINAL WITH THE MOTOR RUNNING, VICE MOTOR TO STOP RUNNING.
- (2). 電機正/反轉控制 (F/R) MOTOR IS/INVERSION OF CONTROL (F/R)
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- (3). 制動停機 (BRK) BRAKE DOWN (BRK)
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- (4). 電機轉速信號輸出 (SPEED) MOTOR SPEED SIGNAL OUTPUT (SPEED)
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- (5). 報警輸出ALARM OUTPUT
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▶ 接線圖 WIRING DIAGRAM



▶ 安裝尺寸圖 INSTALLATION SIZE CHART



▶ 驅動器使用方法及注意事項 DRIVES USE METHOD AND MATTERS NEEDING ATTENTION

- 本驅動器適配電機為DC48V以下的三相直流無刷電機。THIS ADAPTATION MOTOR DRIVE FOR THE FOLLOWING DC48V THREE-PHASE BRUSHLESS DC MOTOR.
- 按照圖示方法，正確連接電機繞組線，霍爾信號線及電源線，注意UVW三相的順序。ACCORDING TO THE GRAPHIC METHOD, THE CORRECT CONNECTION OF MOTOR WINDING LINE, THE HALL SIGNAL LINES AND POWER CORD, PAY ATTENTION TO THE SALE OF THREE PHASE SEQUENCE.
- 電機方向的正反，需依靠正反轉控制端子F/R進行控制，不能像非同步電機那樣通過改變接線實現正反轉，不正確的接線會導致電機運轉不正常。MOTOR IN THE DIRECTION OF POSITIVE AND NEGATIVE, NEED TO RELY ON POSITIVE & NEGATIVE CONTROL TERMINAL TO CONTROL, THE F/R NOT LIKE ASYNCHRONOUS MOTOR BY CHANGING THE WIRING ACHIEVE POSITIVE & NEGATIVE, CAN LEAD TO INCORRECT WIRING IS ABNORMAL MOTOR.
- 功率保護設定：從驅動器的參數設定表上選擇最接近電機額定功率的P-SV設定值，將電位器旋轉到相應位置PARAMETER SETTING IN THE DRIVE POWER PROTECTION SETTING: TABLE CHOOSE THE MOST CLOSE TO THE MOTOR RATED POWER P - SV VALUE, ROTATE THE POTENTIOMETER TO THE CORRESPONDING POSITION
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- 電機磁極數設定：用於設定4極和8極電機的使用。不正確的設置會導致電機動作異常或速度顯示不正確（需控制器）MOTOR MAGNETIC POLE NUMBER SET, IS USED TO SET THE USE OF 4 AND 8 POLE MOTOR. INCORRECT SETTING CAN LEAD TO ABNORMAL MOTOR MOVEMENTS OR SPEED DISPLAY INCORRECTLY (CONTROLLER)
- 直流電源要正確連接。DC POWER SUPPLY IS CONNECT CORRECTLY.
- 本款驅動器另配有速度顯示與設置裝置，可對電機速度及加速減速時間等進行設定，如需要需另行購買（具體用法詳見速度設定裝置說明書）THIS DRIVES THE OTHER IS EQUIPPED WITH SPEED DISPLAY AND SET UP THE DEVICE, CAN THE MOTOR SPEED AND DECELERATION TIME SETTINGS, SUCH AS THE NEED TO BUY SEPARATELY USAGE (FOR MORE INFORMATION ON SPEED SETTING DEVICE SPECIFICATION)

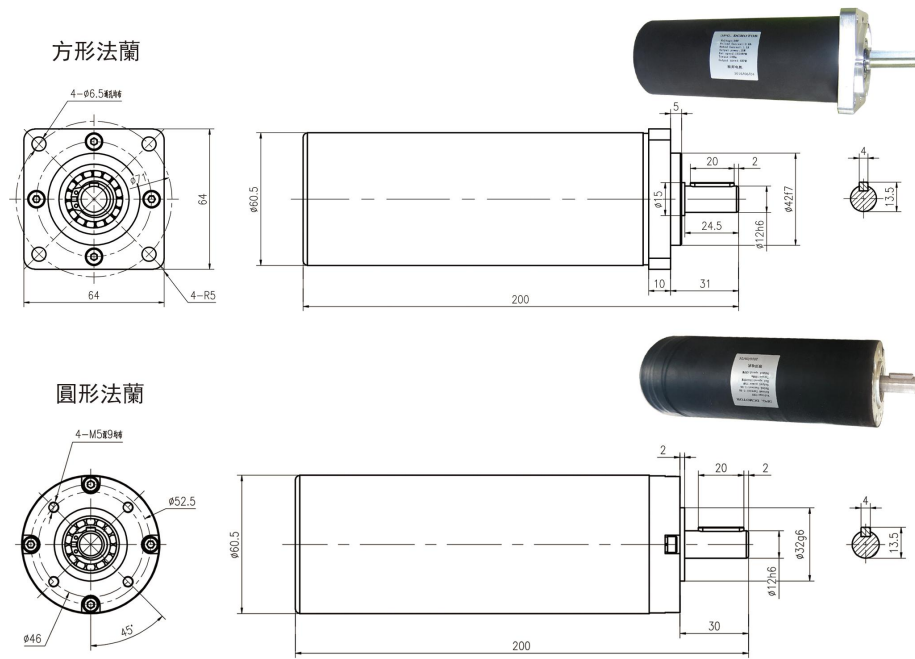
OUBANG®
直流減速機
DC SPEED REDUCER

OUBANG

- 高精密度 — High perfection
- 使用壽命長 — Long life
- 低噪音 — Low noise



▶ 電機外形圖 MOTOR OUTLINE DRAWING

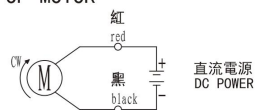


▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

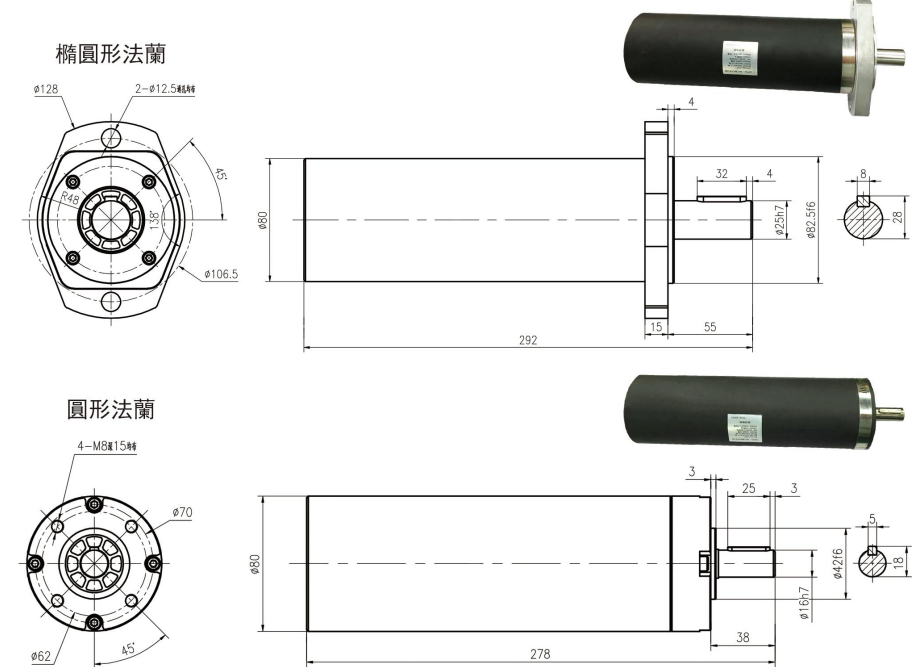
型號 MODEL	電壓 VOLTAGE DC (V)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS				齒輪箱速比 GEAR BOX RATIO (i)	MAXIMUM ALLOWABLE TORQUE (N.m)
		電流CURRENT (A)	轉速SPEED (r/min)	電機轉速 SPEED (r/min)	電流CURRENT (A)	輸出轉速 OUTPUT SPEED (r/min)	轉矩TORQUE (N.m)		
法蘭方形 ZYT60	24	0.4 (Max)	3.5	1400	1.3 (Max)	2.6	33	398	35
法蘭圓形 ZYT60	24	0.4 (Max)	3.5	1400	1.8 (Max)	2.6	43	398	45

可根據客戶要求定做電機電壓、電機轉速、配編碼器等

▶ 電機接綫圖 WIRING DIAGRAM OF MOTOR



▶ 電機外形圖 MOTOR OUTLINE DRAWING

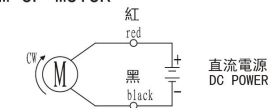


▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

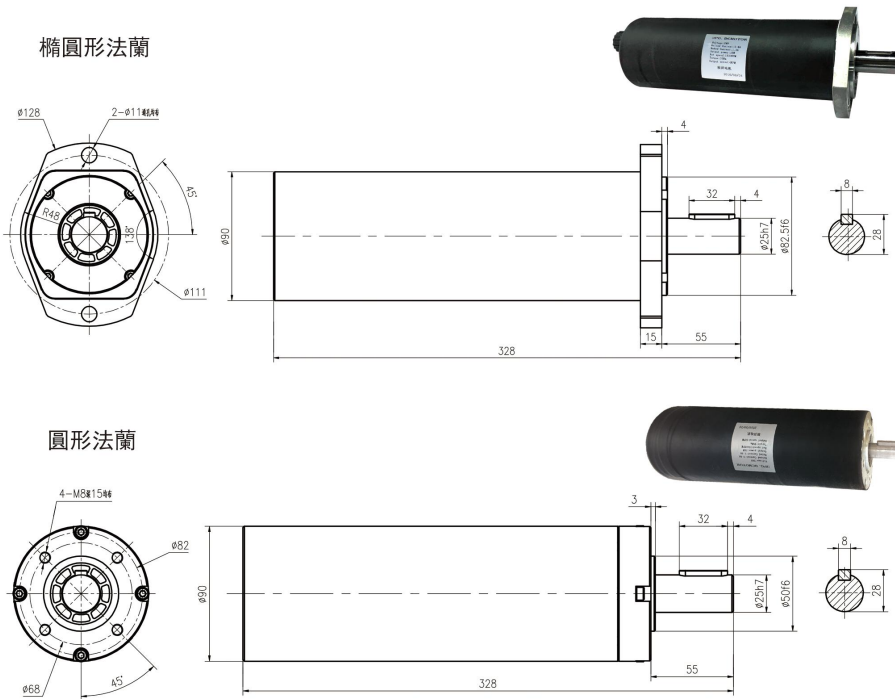
型號 MODEL	電壓 VOLTAGE DC (V)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS			齒輪箱速比 GEAR BOX RATIO (i)	最大允許轉矩 MAXIMUM ALLOWABLE TORQUE (N.m)	
		電流CURRENT (A)	轉速SPEED (r/min)	電機轉速 SPEED (r/min)	電流CURRENT (A)	輸出轉速 OUTPUT SPEED (r/min)			轉矩TORQUE (N.m)
法蘭橢圓形 ZYT80	24	0.4 (Max)	2.6	1100	2.1 (Max)	1.7	110	408	120
法蘭圓形 ZYT80	24	0.5 (Max)	2.6	1200	2.8 (Max)	1.7	130	408	140

可根據客戶要求定做電機電壓、電機轉速、配編碼器等

▶ 電機接綫圖 WIRING DIAGRAM OF MOTOR



▶ 電機外形圖 MOTOR OUTLINE DRAWING

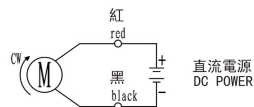


▶ 電機性能參數 MOTOR PERFORMANCE PARAMETERS

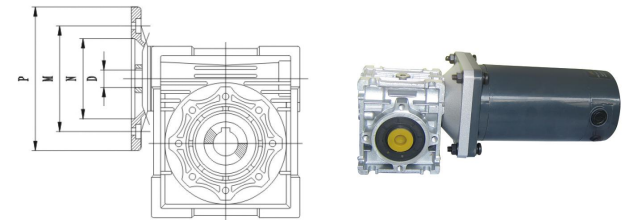
型號 MODEL	電壓 VOLTAGE DC (V)	空載參數NO-LOAD PARAMETERS		負載參數LOAD PARAMETERS				齒輪箱速比 GEAR BOX RATIO (i)	最大允許轉矩 MAXIMUM ALLOWABLE TORQUE (N.m)
		電流CURRENT (A)	轉速SPEED (r/min)	電機轉速 SPEED (r/min)	電流CURRENT (A)	輸出轉速 OUTPUT SPEED (r/min)	轉矩TORQUE (N.m)		
法蘭橢圓形 ZYT90	24	0.5 (Max)	2.6	1300	2.8 (Max)	1.7	150	408	160
法蘭圓形 ZYT90	24	0.6 (Max)	2.6	1200	3.6 (Max)	1.7	300	408	310

可根據客戶要求定做電機電壓、電機轉速、配編碼器等

▶ 電機接線圖 WIRING DIAGRAM OF MOTOR



▶ 電機直連尺寸 MOTOR MOUNTING DIMENSIONS



NMRV	PAM IEC	N	M	P	D											
					5	7.5	10	15	20	25	30	40	50	60	80	100
025	56B14	50	65	80	9	9	9	9	9	-	9	9	9	9	-	-
	63B5	95	115	140	11	11	11	11	11	11	11	11	11	-	-	-
030	63B14	60	75	90	9	9	9	9	9	9	9	9	9	-	-	-
	56B5	80	100	120	-	-	-	-	-	-	-	-	-	9	9	9
040	56B14	50	65	80	14	14	14	14	14	14	14	14	-	-	-	-
	71B5	110	130	160	-	-	-	-	-	-	-	-	-	-	-	-
	71B14	70	85	105	11	11	11	11	11	11	11	11	11	11	11	11
	63B5	95	115	140	-	-	-	-	-	-	-	-	-	9	9	9
	63B14	60	75	90	-	-	-	-	-	-	-	-	-	-	-	-
050	56B5	80	100	120	19	19	19	19	19	19	19	19	-	-	-	-
	80B5	130	165	200	14	14	14	14	14	14	14	14	14	14	14	-
	80B14	80	100	120	-	-	-	-	-	-	-	-	-	-	-	-
	71B5	110	130	160	-	-	-	-	-	-	-	-	11	11	11	11
	63B5	95	115	140	-	-	-	-	-	-	-	-	-	-	-	-
063	90B5	130	165	200	-	24	24	24	24	24	24	-	-	-	-	-
	90B14	95	115	140	-	-	-	-	-	-	-	-	-	-	-	-
	80B5	130	165	200	-	19	19	19	19	19	19	19	19	19	-	-
	80B14	80	100	120	-	-	-	-	-	-	-	-	-	-	-	-
	71B5	110	130	160	-	-	-	-	-	-	-	14	14	14	14	14
075	100/112B5	180	215	250	-	28	28	28	-	-	-	-	-	-	-	-
	100/112B14	110	130	160	-	-	-	-	-	-	-	-	-	-	-	-
	90B5	130	165	200	-	24	24	24	24	24	24	24	-	-	-	-
	90B14	95	115	140	-	-	-	-	-	-	-	-	-	-	-	-
	80B5	130	165	200	-	-	-	-	19	19	19	19	19	19	19	19
090	80B14	80	100	120	-	-	-	-	-	-	-	-	-	-	-	-
	71B5	110	130	160	-	-	-	-	-	-	-	-	-	14	14	14
	100/112B5	180	215	250	-	28	28	28	28	28	28	-	-	-	-	-
	100/112B14	110	130	160	-	-	-	-	-	-	-	-	-	-	-	-
	90B5	130	165	200	-	24	24	24	24	24	24	24	24	24	-	-
110	90B14	95	115	140	-	-	-	-	-	-	-	-	-	-	-	-
	80B5	130	165	200	-	-	-	-	-	-	-	19	19	19	19	19
	80B14	80	100	120	-	-	-	-	-	-	-	-	-	-	-	-
	132B5	230	265	300	-	38	38	38	88	-	-	-	-	-	-	-
	100/112B5	180	215	250	-	28	28	28	28	28	28	28	28	28	-	-
130	90B5	130	165	200	-	-	-	-	24	24	24	24	24	24	24	24
	80B5	130	165	200	-	-	-	-	-	-	-	-	-	-	-	19
	132B5	230	265	300	-	38	38	38	38	38	38	38	-	-	-	-

啮合參數表 MESH DATA

蝸桿螺紋, 蝸輪齒牙, 效率 WORM THREAD, WORM WHEEL TOOTH AND EFFICIENCY DATA



NRV	i	5	7.5	10	15	20	25	30	40	50	60	80	100
025	Z1	4	4	3	2	2	-	1	1	1	1	-	-
	γ	30° 57'	25° 18'	19° 31'	13° 18'	10° 53'	-	6° 44'	5° 29'	4° 34'	3° 56'	-	-
	mx	1.8	1.3	1.3	1.3	1	-	1.3	1	0.8	0.67	-	-
	ηd	0.86	0.84	0.82	0.78	0.74	-	0.66	0.61	0.57	0.54	-	-
	ηs	0.71	0.70	0.67	0.60	0.55	-	0.46	0.41	0.36	0.34	-	-
030	Z1	4	4	3	2	2	1	1	1	1	1	1	-
	γ	21° 48'	18° 50'	14° 21'	9° 40'	7° 44'	5° 34'	4° 52'	3° 53'	3° 11'	2° 46'	2° 07'	-
	mx	2	1.44	1.44	1.44	1.1	1.7	1.44	1.1	0.88	0.75	0.56	-
	ηd	0.86	0.84	0.81	0.76	0.72	0.67	0.64	0.58	0.54	0.50	0.44	-
	ηs	0.71	0.66	0.62	0.54	0.50	0.43	0.39	0.35	0.31	0.27	0.23	-
040	Z1	4	4	4	2	2	2	1	1	1	1	1	1
	γ	27° 24'	21° 48'	17° 31'	11° 18'	8° 58'	7° 41'	5° 42'	4° 30'	3° 51'	3° 17'	2° 32'	2° 05'
	mx	2.8	2	1.5	2	1.5	1.25	2	1.5	1.25	1.04	0.78	0.63
	ηd	0.88	0.86	0.85	0.81	0.77	0.74	0.69	0.64	0.61	0.57	0.51	0.47
	ηs	0.72	0.69	0.65	0.58	0.53	0.5	0.44	0.4	0.36	0.32	0.28	0.24
050	Z1	4	4	4	2	2	2	1	1	1	1	1	1
	γ	23° 49'	21° 48'	17° 42'	11° 18'	9° 04'	7° 36'	5° 42'	4° 33'	3° 49'	3° 17'	2° 33'	2° 04'
	mx	3.4	2.5	1.9	2.5	1.9	1.54	2.5	1.9	1.54	1.3	0.98	0.78
	ηd	0.87	0.86	0.84	0.8	0.77	0.74	0.7	0.65	0.61	0.57	0.51	0.49
	ηs	0.73	0.69	0.65	0.58	0.54	0.5	0.44	0.39	0.35	0.32	0.27	0.23
063	Z1	-	4	4	2	2	2	1	1	1	1	1	1
	γ	-	24° 31'	20° 19'	12° 50'	10° 29'	8° 44'	6° 30'	5° 17'	4° 23'	3° 47'	2° 59'	2° 25'
	mx	-	3.25	2.5	3.25	2.5	2	3.25	2.5	2	1.68	1.28	1.02
	ηd	-	0.87	0.86	0.82	0.8	0.77	0.73	0.69	0.65	0.61	0.56	0.5
	ηs	-	0.7	0.65	0.59	0.54	0.5	0.45	0.4	0.36	0.33	0.28	0.24
075	Z1	-	4	4	2	2	2	1	1	1	1	1	1
	γ	-	26° 33'	21° 48'	14° 02'	11° 18'	9° 37'	7° 07'	5° 42'	4° 50'	4° 05'	3° 15'	2° 40'
	mx	-	4	3	4	3	2.45	4	3	2.45	2	1.54	1.24
	ηd	-	0.88	0.87	0.84	0.81	0.79	0.75	0.71	0.68	0.64	0.59	0.54
	ηs	-	0.7	0.67	0.6	0.57	0.52	0.46	0.42	0.38	0.35	0.29	0.26
090	Z1	-	4	4	2	2	2	1	1	1	1	1	1
	γ	-	28° 20'	23° 26'	15° 05'	12° 14'	10° 37'	7° 40'	6° 11'	5° 21'	4° 36'	3° 36'	2° 57'
	mx	-	4.8	3.6	4.8	3.6	3	4.8	3.6	3	2.5	1.88	1.5
	ηd	-	0.89	0.88	0.85	0.83	0.81	0.77	0.74	0.71	0.68	0.62	0.58
	ηs	-	0.72	0.69	0.63	0.59	0.55	0.49	0.45	0.41	0.38	0.32	0.28
110	Z1	-	4	4	2	2	2	1	1	1	1	1	1
	γ	-	28° 17'	27° 35'	15° 03'	14° 38'	12° 37'	7° 39'	7° 26'	6° 23'	5° 31'	4° 23'	3° 38'
	mx	-	5.89	4.6	5.89	4.6	3.75	5.89	4.6	3.75	3.12	2.36	1.9
	ηd	-	0.89	0.88	0.85	0.84	0.83	0.78	0.77	0.74	0.71	0.66	0.62
	ηs	-	0.71	0.68	0.62	0.61	0.58	0.48	0.48	0.44	0.41	0.36	0.32
130	Z1	-	4	4	2	2	2	1	1	1	1	1	1
	γ	-	28° 46'	26° 15'	15° 21'	13° 51'	11° 49'	7° 48'	7° 01'	5° 58'	5° 12'	4° 05'	3° 25'
	mx	-	7	5.4	7	5.4	4.37	7	5.4	4.37	3.68	2.75	2.24
	ηd	-	0.9	0.88	0.86	0.85	0.83	0.79	0.77	0.74	0.71	0.67	0.63
	ηs	-	0.71	0.68	0.62	0.6	0.57	0.49	0.46	0.43	0.39	0.34	0.3

The helix is right-handed. ηd(1400)...dynamic efficiency at n1=1400 ηs...static efficiency
i...ratio Z1:蝸桿齒數 γ:螺旋角 mx:模數

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