



**Member of the Danfoss Group** 

# HOLIP PRODUCT CATALOG

ZHEJIANG HOLIP ELECTRONIC TECHNOLOGY CO., LTD.



# Introduction

Zhejiang Holip Electronic Technology Co. Ltd. is a member of the Danfoss Group and a centre for R&D, production and logistics as a part of Danfoss Power Electronic Unit.

Danfoss was established in 1933 and is the largest multinational industrial manufacturing company in Denmark. As a global leader in refrigeration & air conditioning, heating & water processing and power electronics, Danfoss sets the industry standard for reliability, excellence and innovation, always striving for the best in customer satisfaction and solutions within the climate and energy industry.

Founded in 2001, Holip engages in researching, designing, producing, marketing and servicing of frequency converters and is a true phenomenon in the industry. It has became one of the largest frequency converter manufacturers in China.

Holip's core product is the HLP series frequency converter, which has been widely used in various industries such as chemical fibres, textiles, printing and dyeing, plastics, knitwear, lighting, steel, paper, chemicals, machines and cranes. It is found widely throughout European, American, Asian, and African markets. Holip is dedicated to providing high quality products, professional sales and efficient and reliable service. Every converter is put through strict quality controls, such as high temperature tests and full load tests, before delivery.

Turnover increased to 60 million USD in 2009 and total output reached 320,000 units. In June 2009, Holip moved into a new modernized factory featuring high-tech production equipment and advanced production processes. The new factory covers an area of 30,000 square meters with a floor area of 21,000 square meters, allowing Holip to increase its capacity to 1 million units per year.

Holip's mission is to exceed market speed in its growth to become a well-known, high-quality brand name, fulfilling its role as the second global brand within the Danfoss Group.





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# **HLP-A Series Versatile Frequency Converter**

HLP-A series frequency converter, a general purpose converter, has powerful and various functions, such as PID controller, simple PLC, internal /external control multi-speed, wobble which is widely used in textile and chemical fiber industries, quasi winding and unwinding function which can keep the line speed constant in a definite accuracy, etc. It has good overload capacity and high output torque.

HLP-A series frequency converters have been widely used in knitwear, chemical fiber, printing and dyeing, plastics, mechanical, chemical, steel, paper and light industries. It has gained high prize from customers, for its high quality and stability.



Power range: 0.4-90 kW (1 & 3×220V), 0.75-415 kW (3×380V)

#### **Functions and Features**

- **4** It has high reliability with the motor control IC+IGBT at the core;
- 4 It has a wider tolerance for the changes of supply voltage by  $\pm 15\%$ ;
- It has PID controller which is used in close loop control systems;
- 🐇 It has simple PLC which can achieve multi-speed, quasi winding and unwinding function, wobble, etc;
- **4** It has high startup torque which can reach 150% while 1Hz;
- Let has good overload capacity which can reach 150% for 1 min, and 180% for 0.2 sec;
- Its output frequency resolution can reach 0.01Hz;
- It has three user-defined frequency bypasses and a range;
- **4** It can automatic compensate output torque when output frequency is low;
- **4** It can automatic regulate output voltage when supply voltage changes in a range;
- It has automatic energy-saving function which can automatic calculation the optimal output voltage according to the load to save energy;
- 🔹 It has Holip communication protocol and Modbus protocol, and it is easier for user to build up centralized control system.



**Technical Data** 

Modulation		SPWM				
AC line supp	ly	380V: 380 ± 15%; 220V: 220 ± 15%				
5 Digital Display & Status Indicator Lamp		Displaying frequency, current, revolution, voltage, counter, temperature, forward or reverse, fault, etc.				
Communicat	ion Mode	RS 485 serial communication				
Communicat	ion Protocol	Holip Communication Protocol Modbus Protocol				
Surrounding	5	Temperature: -10 ~ 40°C Humidity: 0-95% Relative Humidity (Non-dewfall) Vibration: Below 0.5g				
	Frequency Range	0.10~400.00Hz				
	Accuracy	Digital: 0.01% (-10~40°C) Analog: 0.1% (25±10°C)				
Frequency	Reference Resolution	Digital: 0.01Hz Analog: 1% of Maximum Output Frequency				
Control	Output Frequency Resolution	0.01Hz				
	Frequency Setting by LCP	By the buttons of $\leftarrow \land \lor$				
	Frequency Setting by Analog	External 0-5V, 0-10V, 4-20mA, 0-20mA				
	Other functions	Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses).				
	Ramp time	0.1- 6500sec (There are four selectable ramp up / down time)				
	V/F Curve	It is possible to make a V/F curve on the basis of three definable voltage and frequencie.				
	Torque Characteristic	Maximum torque compensation can reach 10%. Startup torque can reach 150% while 1Hz.				
General	Programmable Digital Input	Six programmable digital inputs for 8-speed control, Simple PLC, Ramp time selecting, Up and Down function, Counter, Emergency stop, etc.				
Control	Programmable Digital Output	Five programmable digital outputs for indicating the status of running, below start frequency, counter, fault, the status of simple PLC and alarm.				
	Other functions	Automatic Voltage Regulation, Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble, quasi Winding and Unwinding function, Automatic energy-saving function, User-definable Carrier frequency (0.7-20kHz), etc.				
	Overload Protection	Electronic relay protection for motor Frequency converter (Constant torque: 150%/1 min)				
	Fuse Protection	If fuse has blown, motor will stop.				
	Over voltage Protection	220V Class: DC Voltage > 400V 380V Class: DC Voltage > 800V				
Protections	Under voltage Protection	220V Class: DC Voltage < 200V				
	Flying start after transient supply loss	Flying start after transient supply loss				
	Anti-stall Function	Prevent stalling when running, accelerating and decelerating				
	Output short circuit Protection	Electric circuit protection				
-	Other functions	Heat sink over-temperature protection, Restriction against reverse, Fault Reset, Parameter lock, One for two, etc.				



#### Wiring Diagram and Terminal Description

The wiring of the converter is divided into two parts: main circuit and control circuit. The following drawing is the factory standard wiring diagram of HLPA00D423C-HLPA03D723B / HLPA0D7543C-HLPA03D743B. The terminals should be connected correctly as the wiring diagram (See the user manual for details).



Symbol	Description							
R, S, T	Power supply terminals (For single-phase, connect w	ires to any two terminals)						
U, V, W	Output terminals							
P, Pr	Braking Resistor terminals							
Е	Ground terminal							
DCM	Common terminal for digital inputs							
+10V	10V DC supply							
VI	Voltage input terminal							
AI	Current input terminal							
АМ	Programmable Pulse /Analog Output							
ACM	Common terminal for analog inputs							
RS+, RS-	RS 485 Serial Communication Terminals							
Symbol	Description	Factory setting						
FOR	Programmable Digital Input	Forward						
REV	Programmable Digital Input	Reverse						
RST	Programmable Digital Input	Reset						
SPH	Programmable Digital Input	High speed						
SPM	Programmable Digital Input	Medium speed						
SPL	Programmable Digital Input	Low speed						
DRV	Programmable Digital output (Optical coupling) Running							
UPF	Programmable Digital output (Optical coupling)	Reach Reference						
FA, FB	Programmable Digital output (Normal close)	Fault						
FB, FC	Programmable Digital output (Normal open)	Fault						
KA, KB	Programmable Digital output (Normal open)	No Function						



Ordering number         Nodel         Mains supply (kW)         Ower (kW)         Output Current (kW)         Model         LCP           301001         HLPA0D7523C         1.4.3×220V 50Hz         0.4         2.3         0.4           301002         HLPA0D7523C         1.4.3×220V 50Hz         0.75         5.0         0.75           300004         HLPA007523C         1.4.3×220V 50Hz         2.2         11         2.2         0P-AC01           300005         HLPA017523B         1.4.3×220V 50Hz         2.5         2.5         5.5         3.5           300006         HLPA017523B         1.4.3×220V 50Hz         5.5         15         5         3.5           300007         HLPA017523B         1.4.3×220V 50Hz         15         65         15           300001         HLPA01523B         1.4.3×220V 50Hz         18.5         80         18.5           300012         HLPA01523B         1.4.3×220V 50Hz         30         130         30           300013         HLPA001523B         1.4.3×220V 50Hz         5         120         55           300014         HLPA00523B         1.4.3×220V 50Hz         5         210         55           300016         HLPA01543C         3×380V 50Hz	Electric	Electrical Data										
number         Andra Suppr         (kW)         (A)         (kW)         Mode           301001         HLPA0017523C         1.4.3x220V 50Hz         0.4         2.5         0.4           301002         HLPA01D523C         1.4.3x220V 50Hz         0.75         5.0         0.75         0           301003         HLPA01D523C         1.4.3x220V 50Hz         2.2         11         2.2         0         0.75         5.5         0         0.75         0.75         0.73         0         0.8         0.9         0.8         0.9         0.8         0.9         0.8         0.9         0.8         0.9         0.9         0.8         0.9	Ordering	Madal	Mains supply	Power	Output Current	Motor	LCP					
301001         HL2A00723C         1.8.3×220V 50Hz         0.4         2.5         0.4           301002         HL2A00723C         1.8.3×220V 50Hz         0.75         5.0         0.75         0         0.75           301003         HL2A017523C         1.8.3×220V 50Hz         1.5         7.0         1.5         0         0.74         0.75         0.7         0.73         0         0.74         0.75         3.7         1         3.7         0         0.75         0.7	number	Widdei	Mains suppry	( <b>kW</b> )	(A)	( <b>kW</b> )	Model					
301002         HLPADD7523C         1.4         3.5220V 50Hz         0.75         5.0         0.75         0P-AC01           301003         HLPAD10523C         1.4         3.5220V 50Hz         1.5         7.0         1.5           300004         HLPAD10523B         1.4         3.5220V 50Hz         2.2         11         2.2         0P-AB01           300005         HLPAD57523B         1.4         3.5220V 50Hz         5.5         5.5         5           300007         HLPAD7D523B         1.4         3.5220V 50Hz         7.5         33         7.5           300000         HLPAD07D523B         1.4         3.5220V 50Hz         15         6.5         15           300010         HLPAD0123B         1.4         3.5220V 50Hz         2.2         96         2.2           300013         HLPAD00323B         1.4         3.220V 50Hz         30         130         30         30           300014         HLPAD03723B         1.4         3.220V 50Hz         75         210         55           300017         HLPAD03723B         1.4         3.220V 50Hz         75         2.7         0.75           3001017         HLPAD03753C         1.4         3.220V 50Hz         1	301001	HLPA00D423C	1 & 3×220V 50Hz	0.4	2.5	0.4						
301003         HLPA01D523C         1         8.3220V 50Hz         1.5         7.0         1.5           300004         HLPA03D723B         1         & 3.220V 50Hz         3.7         17         3.7           300006         HLPA05D523B         1         & 3.220V 50Hz         5.5         25         5.5           300006         HLPA05D523B         1         & 3.220V 50Hz         11         49         11           300009         HLPA001123B         1         & 3.220V 50Hz         11         49         11           300009         HLPA001523B         1         & 3.220V 50Hz         12         96         22           300011         HLPA00523B         1         & 3.220V 50Hz         30         130         30           300012         HLPA00523B         1         & 3.220V 50Hz         37         160         37           300013         HLPA00523B         1         & 3.220V 50Hz         35         210         55           300016         HLPA00523B         1         & 3.220V 50Hz         75         286         75           300016         HLPA005323B         1         & 3.220V 50Hz         3.5         4.0         1.5           3001016 <td>301002</td> <td>HLPA0D7523C</td> <td>1 &amp; 3×220V 50Hz</td> <td>0.75</td> <td>5.0</td> <td>0.75</td> <td>OP-AC01</td>	301002	HLPA0D7523C	1 & 3×220V 50Hz	0.75	5.0	0.75	OP-AC01					
300004         HEPA02D223B         I         8:3:220V 50Hz         2.2         11         2.2         0P-AB01           300005         HLPA03D723B         I:         8:3:220V 50Hz         3.7         17         3.7           300006         HLPA03D723B         I:         8:3:220V 50Hz         5.5         5.5           300007         HLPA01123B         I:         8:3:220V 50Hz         11         49         11           300006         HLPA01523B         I:         8:3:220V 50Hz         15         65         15           300010         HLPA001523B         I:         8:3:220V 50Hz         30         130         30           300012         HLPA00323B         I:         8:3:220V 50Hz         30         130         30           300013         HLPA00323B         I:         8:3:220V 50Hz         75         210         55           300016         HLPA007532B         I:         8:3:220V 50Hz         75         2.7         0.75           301101         HLPA007543C         3:380V 50Hz         7.5         2.7         0.75           301102         HLPA010543B         3:380V 50Hz         7.5         7.5         3.7           3010104         HLPA010543	301003	HLPA01D523C	1 & 3×220V 50Hz	1.5	7.0	1.5						
300005         HLPA03D723B         I         8.3220V 50Hz         3.7         17         3.7         0148D1           300006         HLPA05D523B         I         8.3220V 50Hz         5.5         25         5.5           300007         HLPA05D523B         I         8.3220V 50Hz         11         49         11           300008         ILLPA00123B         I         8.3220V 50Hz         15         65         15           300011         HLPA002323B         I         8.3220V 50Hz         22         96         22           300013         HLPA002323B         I         8.3220V 50Hz         37         160         37           300014         HLPA005233B         I         8.3220V 50Hz         55         10         55           300016         HLPA005233B         I         8.3220V 50Hz         55         210         55           300016         HLPA005233B         I         8.3220V 50Hz         75         286         75           300016         HLPA005234C         3380V 50Hz         0.75         2.7         0.75           3001010         HLPA01543C         3380V 50Hz         3.7         8.5         3.7           3001010         HLPA035743	300004	HLPA02D223B	1 & 3×220V 50Hz	2.2	11	2.2	OP AP01					
300006         IILPA05D523B         1 & 3×220V 50Hz         7.5         25         25         5.5           300007         IILPA07D523B         1 & 3×220V 50Hz         7.5         33         7.5           300008         IILPA001123B         1 & 3×220V 50Hz         11         49         11           300009         IILPA001223B         1 & 3×220V 50Hz         15         65         15           300010         IILPA003223B         1 & 3×220V 50Hz         22         96         22           300011         IILPA003223B         1 & 3×220V 50Hz         30         130         30           300014         IILPA005223B         1 & 3×220V 50Hz         30         130         55           300015         IILPA00523B         1 & 3×220V 50Hz         55         210         55           300016         IILPA00523B         1 & 3×220V 50Hz         90         343         90           301101         IILPA00523B         1 & 3×220V 50Hz         90         343         90           301101         ILPA00543C         3×380V 50Hz         1.5         4.0         1.5           3001014         ILPA020543B         3×380V 50Hz         3.7         8.5         3.7         0P-AB01      <	300005	HLPA03D723B	1 & 3×220V 50Hz	3.7	17	3.7	OF-AB01					
300007         HLPA07D523B         1 & 3×220V 50Hz         7.5         33         7.5           300008         HLPA001123B         1 & 3×220V 50Hz         11         49         11           300009         HLPA001523B         1 & 3×220V 50Hz         15         65         15           300010         HLPA00223B         1 & 3×220V 50Hz         22         96         22         00           300011         HLPA003023B         1 & 3×220V 50Hz         30         130         30         30           300012         HLPA003023B         1 & 3×220V 50Hz         37         160         37           300013         HLPA004523B         1 & 3×220V 50Hz         45         182         45           300016         HLPA005523B         1 & 3×220V 50Hz         75         236         75           300016         HLPA005523B         1 & 3×220V 50Hz         90         343         90           301101         HLPA005523B         1 & 3×220V 50Hz         2.5         2.7         0.75           301010         HLPA017543C         3×380V 50Hz         1.5         4.0         1.5           300101         HLPA017543B         3×380V 50Hz         1.5         1.5         5.5	300006	HLPA05D523B	1 & 3×220V 50Hz	5.5	25	5.5						
300008         HLPA001123B         1 & 3×220V 50Hz         11         49         11           300009         HLPA001523B         1 & 3×220V 50Hz         15         65         15           300011         HLPA10523B         1 & 3×220V 50Hz         125         80         18.5           300012         HLPA00323B         1 & 3×220V 50Hz         30         130         30           300012         HLPA00323B         1 & 3×220V 50Hz         30         130         30           300013         HLPA005523B         1 & 3×220V 50Hz         45         182         45           300015         HLPA005523B         1 & 3×220V 50Hz         55         210         55           300016         HLPA007523B         1 & 3×220V 50Hz         90         343         90           301010         HLPA007543C         3×380V 50Hz         1.5         4.0         1.5         0P-AC01           301103         HLPA007543B         3×380V 50Hz         3.7         8.5         3.7         0P-AC01           3010104         HLPA05143B         3×380V 50Hz         3.7         8.5         5.5         00           3001016         HLPA01543B         3×380V 50Hz         1.5         3.3         1.5	300007	HLPA07D523B	1 & 3×220V 50Hz	7.5	33	7.5						
300009         HLPA001523B         1 & 3×220V 50Hz         15         65         15           300010         HLPA18D523B         1 & 3×220V 50Hz         18.5         80         18.5           300011         HLPA002223B         1 & 3×220V 50Hz         22         96         22           300012         HLPA00323B         1 & 3×220V 50Hz         30         130         30           300013         HLPA00323B         1 & 3×220V 50Hz         37         160         37           300014         HLPA005523B         1 & 3×220V 50Hz         55         210         55           300016         HLPA007523B         1 & 3×220V 50Hz         75         286         75           300016         HLPA007523B         1 & 3×220V 50Hz         07         2.7         0.75           301010         HLPA007543C         3×380V 50Hz         1.5         4.0         1.5         07-AC01           301010         HLPA01543C         3×380V 50Hz         2.7         0.75         0.7         0.7           300105         HLPA01543B         3×380V 50Hz         2.5         12.5         5.5         3.7         07-AE01           300106         HLPA05543B         3×380V 50Hz         11         24	300008	HLPA001123B	1 & 3×220V 50Hz	11	49	11						
300010         HLPA18D523B         1.4.3x220V 50Hz         18.5         80         18.5           300011         HLPA002223B         1.4.3x220V 50Hz         22         96         22           300012         HLPA003023B         1.4.3x220V 50Hz         37         160         37           300014         HLPA005523B         1.4.3x220V 50Hz         45         182         45           300015         HLPA005523B         1.4.3x220V 50Hz         55         210         55           300016         HLPA005523B         1.4.3x220V 50Hz         75         286         75           300017         HLPA007533B         1.4.3x220V 50Hz         90         343         90           301101         HLPA007543C         3x380V 50Hz         1.5         4.0         1.5         0P-AC01           301103         HLPA02D243C         3x380V 50Hz         1.5         1.2.5         5.5         30016         HLPA01D543B         3x380V 50Hz         1.5         1.2.5         5.5         30016         HLPA03D543B         3x380V 50Hz         1.5         3.3         15         30016         HLPA03D543B         3x380V 50Hz         1.5         3.3         15           300106         HLPA03D543B         3x380V 50Hz	300009	HLPA001523B	1 & 3×220V 50Hz	15	65	15						
300011         HLPA002223B         1.4.3×220V 50Hz         22         96         22           300012         HLPA003023B         1.4.3×220V 50Hz         30         130         30           300013         HLPA003023B         1.4.3×220V 50Hz         37         160         37           300014         HLPA00523B         1.4.3×220V 50Hz         55         210         55           300015         HLPA00523B         1.4.3×220V 50Hz         55         210         55           300016         HLPA00753B         1.4.3×220V 50Hz         90         343         90           301101         HLPA009023B         1.4.3×220V 50Hz         0.75         2.7         0.75           301102         HLPA010543C         3×380V 50Hz         1.5         4.0         1.5         0           301103         HLPA010543E         3×380V 50Hz         2.5         0         2.2         0P-AC01           301016         HLPA05543B         3×380V 50Hz         1.5         1.5         3.7         0P-AB01           300106         HLPA05143B         3×380V 50Hz         1.5         1.5         3.0         1.5           300106         HLPA001143B         3×380V 50Hz         1.2         4.7	300010	HLPA18D523B	1 & 3×220V 50Hz	18.5	80	18.5						
300012         HLPA003023B         1 & 3x220V 50Hz         30         130         30           300013         HLPA003723B         1 & 3x220V 50Hz         37         160         37           300014         HLPA005323B         1 & 3x220V 50Hz         55         210         55           300016         HLPA005523B         1 & 3x220V 50Hz         75         286         75           300017         HLPA007533B         1 & 3x220V 50Hz         75         2.7         0.75           301101         HLPA0D7543C         3x380V 50Hz         1.5         4.0         1.5         0           301102         HLPA01543C         3x380V 50Hz         2.2         5.0         2.2         0         0           301104         HLPA020243C         3x380V 50Hz         5.5         12.5         5.5         30         0         0           300104         HLPA050543B         3x380V 50Hz         1.5         3.3         15         30         11         2.4         11           300106         HLPA001543B         3x380V 50Hz         15         33         15         30         15         30         15         30         15         30         11         14         30 <t< td=""><td>300011</td><td>HLPA002223B</td><td>1 &amp; 3×220V 50Hz</td><td>22</td><td>96</td><td>22</td><td>00.4002</td></t<>	300011	HLPA002223B	1 & 3×220V 50Hz	22	96	22	00.4002					
300013         HLPA003723B         I & 3×220V SOHz         37         160         37           300014         HLPA004523B         I & 3×220V SOHz         45         182         45           300015         HLPA007523B         I & 3×220V SOHz         55         210         55           300016         HLPA007523B         I & 3×220V SOHz         75         286         75           300017         HLPA007532         3×380V SOHz         0.75         2.7         0.75           301101         HLPA01D543C         3×380V SOHz         1.5         4.0         1.5           301102         HLPA01D543C         3×380V SOHz         2.2         5.0         2.2           300104         HLPA05D743B         3×380V SOHz         5.5         12.5         5.5           300105         HLPA05D43B         3×380V SOHz         7.5         17.5         7.5           300106         HLPA07D543B         3×380V SOHz         11         2.4         11           300107         HLPA001543B         3×380V SOHz         18.5         40         18.5           300109         HLPA10543B         3×380V SOHz         18.5         40         18.5           300110         HLPA004543B	300012	HLPA003023B	1 & 3×220V 50Hz	30	130	30	OP-AB02					
300014         HLPA004523B         I & 3×220V 50Hz         45         182         45           300015         HLPA005523B         I & 3×220V 50Hz         55         210         55           300016         HLPA007523B         I & 3×220V 50Hz         90         343         90           30110         HLPA007543C         3×380V 50Hz         90         543         90           301101         HLPA017543C         3×380V 50Hz         0.75         2.7         0.75           301102         HLPA01543C         3×380V 50Hz         1.5         4.0         1.5         0P-AC01           301103         HLPA01D543C         3×380V 50Hz         3.7         8.5         3.7         0P-AC01           300104         HLPA03D743B         3×380V 50Hz         5.5         12.5         5.5         300106         HLPA01543B         3×380V 50Hz         15         33         15           300106         HLPA001543B         3×380V 50Hz         15         33         15         300107         HLPA001543B         3×380V 50Hz         16         30         37           300110         HLPA001543B         3×380V 50Hz         17         80         37         30         37         300113         HLPA00	300013	HLPA003723B	1 & 3×220V 50Hz	37	160	37	]					
300015         HLPA003523B         1 & 3×220V 50Hz         55         210         55           300016         HLPA007523B         1 & 3×220V 50Hz         75         286         75           300017         HLPA0077523B         1 & 3×220V 50Hz         90         343         90           301101         HLPA007743C         3x380V 50Hz         0.75         2.7         0.75           301102         HLPA01D543C         3x380V 50Hz         1.5         4.0         1.5         OP-AC01           301103         HLPA02D243C         3x380V 50Hz         2.2         5.0         2.2         3010           300104         HLPA03D743B         3x380V 50Hz         3.7         8.5         3.7         OP-AB01           300105         HLPA01D543B         3x380V 50Hz         1.5         3.3         15           300106         HLPA017543B         3x380V 50Hz         15         3.3         15           300107         HLPA00143B         3x380V 50Hz         18.5         40         18.5           300108         HLPA00143B         3x380V 50Hz         15         3.3         30           300112         HLPA003743B         3x380V 50Hz         16         30         30	300014	HLPA004523B	1 & 3×220V 50Hz	45	182	45						
300016         HLPA007523B         1 & 3x220V 50Hz         75         286         75           30017         HLPA009023B         1 & 3x220V 50Hz         90         343         90           301101         HLPA017543C         3x380V 50Hz         0.75         2.7         0.75           301102         HLPA01D543C         3x380V 50Hz         1.5         4.0         1.5         0P-AC01           301103         HLPA01D543C         3x380V 50Hz         2.2         5.0         2.2         0.75         0.75           300104         HLPA02D243C         3x380V 50Hz         1.5         1.5         5.5         0.7         0.75           300105         HLPA05D543B         3x380V 50Hz         1.5         1.7.5         7.5         17.5         7.5           300106         HLPA07D543B         3x380V 50Hz         11         2.4         11         11         14         11           300107         HLPA001543B         3x380V 50Hz         18.5         40         18.5         30         16         3.5           300110         HLPA00243B         3x380V 50Hz         30         65         30         30         33         33         33         33         32         35 </td <td>300015</td> <td>HLPA005523B</td> <td>1 &amp; 3×220V 50Hz</td> <td>55</td> <td>210</td> <td>55</td> <td>]</td>	300015	HLPA005523B	1 & 3×220V 50Hz	55	210	55	]					
300017         HLPA009023B         1 & 3 × 220 V 50Hz         90         343         90           301101         HLPA017543C         3×380V 50Hz         0.75         2.7         0.75           301102         HLPA01D543C         3×380V 50Hz         1.5         4.0         1.5           301103         HLPA02D243C         3×380V 50Hz         2.2         5.0         2.2           300104         HLPA05D543B         3×380V 50Hz         3.7         8.5         3.7         OP-AC01           300105         HLPA05D543B         3×380V 50Hz         7.5         17.5         7.5           300106         HLPA01543B         3×380V 50Hz         11         24         11           300107         HLPA00143B         3×380V 50Hz         15         33         15           300109         HLPA00143B         3×380V 50Hz         18.5         40         18.5           300110         HLPA003043B         3×380V 50Hz         30         65         30           300112         HLPA00343B         3×380V 50Hz         37         80         37           300113         HLPA00343B         3×380V 50Hz         10         55         110         55           300114	300016	HLPA007523B	1 & 3×220V 50Hz	75	286	75	]					
301101         HLPA0D7543C         3×380V 50Hz         0.75         2.7         0.75           301102         HLPA01D543C         3×380V 50Hz         1.5         4.0         1.5         OP-AC01           301103         HLPA02D243C         3×380V 50Hz         2.2         5.0         2.2           300104         HLPA02D743B         3×380V 50Hz         2.7         5.5         3.7         OP-AB01           300104         HLPA05D543B         3×380V 50Hz         1.5         17.5         7.5         3.7         OP-AB01           300105         HLPA05D543B         3×380V 50Hz         1.5         3.3         15         3.5         3.5           300106         HLPA01143B         3×380V 50Hz         1.5         3.3         1.5         3.5         3.5         3.0         3.5         3.0         1.5         3.0         3.5         3.0         3.0         5.5         3.0         3.0         1.5         3.0         3.0         3.0         3.5         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0 <td< td=""><td>300017</td><td>HLPA009023B</td><td>1 &amp; 3×220V 50Hz</td><td>90</td><td>343</td><td>90</td><td></td></td<>	300017	HLPA009023B	1 & 3×220V 50Hz	90	343	90						
301102         HLPA01D543C         3×380V 50Hz         1.5         4.0         1.5         OP-AC01           301103         HLPA02D243C         3×380V 50Hz         2.2         5.0         2.2           300104         HLPA03D743B         3×380V 50Hz         3.7         8.5         3.7         OP-AB01           300105         HLPA05D543B         3×380V 50Hz         5.5         12.5         5.5           300106         HLPA07D543B         3×380V 50Hz         7.5         7.5         7.5           300107         HLPA001543B         3×380V 50Hz         11         24         11           300108         HLPA001543B         3×380V 50Hz         15         33         15           300109         HLPA001543B         3×380V 50Hz         30         65         30           300110         HLPA002243B         3×380V 50Hz         30         65         30           300112         HLPA00543B         3×380V 50Hz         37         80         37           300114         HLPA00543B         3×380V 50Hz         10         55         110         55           300115         HLPA007543B         3×380V 50Hz         132         253         132           300	301101	HLPA0D7543C	3×380V 50Hz	0.75	2.7	0.75						
301103         HLPA02D243C         3×380V 50Hz         2.2         5.0         2.2           300104         HLPA03D743B         3×380V 50Hz         3.7         8.5         3.7         OP-AB01           300105         HLPA05D543B         3×380V 50Hz         5.5         12.5         5.5           300106         HLPA05D543B         3×380V 50Hz         7.5         17.5         7.5           300107         HLPA001543B         3×380V 50Hz         11         24         11           300108         HLPA001543B         3×380V 50Hz         15         33         15           300109         HLPA001543B         3×380V 50Hz         18.5         40         18.5           300110         HLPA00243B         3×380V 50Hz         22         47         22           300111         HLPA003043B         3×380V 50Hz         30         65         30           300112         HLPA00543B         3×380V 50Hz         37         80         37           300113         HLPA00543B         3×380V 50Hz         15         110         55           300114         HLPA01543B         3×380V 50Hz         100         110           300117         HLPA016043B         3×380V 50Hz	301102	HLPA01D543C	3×380V 50Hz	1.5	4.0	1.5	OP-AC01					
300104         HLPA03D743B         3×380V 50Hz         3.7         8.5         3.7         OP-AB01           300105         HLPA05D543B         3×380V 50Hz         5.5         12.5         5.5           300106         HLPA07D543B         3×380V 50Hz         7.5         17.5         7.5           300107         HLPA001143B         3×380V 50Hz         11         24         11           300108         HLPA001543B         3×380V 50Hz         15         33         15           300109         HLPA001543B         3×380V 50Hz         18.5         40         18.5           300110         HLPA003043B         3×380V 50Hz         22         47         22           300111         HLPA003743B         3×380V 50Hz         30         65         30           300112         HLPA003743B         3×380V 50Hz         55         110         55           300114         HLPA00543B         3×380V 50Hz         152         75           300115         HLPA013243B         3×380V 50Hz         110         210         110           300117         HLPA011643B         3×380V 50Hz         132         253         132           300112         HLPA01643B         3×380V 50Hz<	301103	HLPA02D243C	3×380V 50Hz	2.2	5.0	2.2						
300105         HLPA05D543B         3×380V 50Hz         5.5         12.5         5.5           300106         HLPA07D543B         3×380V 50Hz         7.5         17.5         7.5           300107         HLPA001143B         3×380V 50Hz         11         24         11           300108         HLPA001543B         3×380V 50Hz         15         33         15           300109         HLPA01543B         3×380V 50Hz         15         33         15           300110         HLPA00343B         3×380V 50Hz         15         30         65         30           300110         HLPA00343B         3×380V 50Hz         37         80         37         30         37           300112         HLPA003743B         3×380V 50Hz         37         80         37         30         30         33         300         34         360         37           300114         HLPA00543B         3×380V 50Hz         55         110         55         30         30         33         33         32         30         30         30         30         33         33         30         34         36         33         33         33         30         30         34 <td>300104</td> <td>HLPA03D743B</td> <td>3×380V 50Hz</td> <td>3.7</td> <td>8.5</td> <td>3.7</td> <td>OP-AB01</td>	300104	HLPA03D743B	3×380V 50Hz	3.7	8.5	3.7	OP-AB01					
300106         HLPA07D543B         3×380V 50Hz         7.5         17.5         7.5           300107         HLPA001143B         3×380V 50Hz         11         24         11           300108         HLPA0011543B         3×380V 50Hz         15         33         15           300109         HLPA18D543B         3×380V 50Hz         18.5         40         18.5           300110         HLPA002243B         3×380V 50Hz         22         47         22           300111         HLPA003043B         3×380V 50Hz         30         65         30           300112         HLPA00343B         3×380V 50Hz         37         80         37           300112         HLPA00343B         3×380V 50Hz         55         110         55           300113         HLPA005543B         3×380V 50Hz         55         110         55           300114         HLPA00543B         3×380V 50Hz         10         210         110           300118         HLPA01043B         3×380V 50Hz         132         253         132           300118         HLPA016043B         3×380V 50Hz         185         340         185           300122         HLPA018543B         3×380V 50Hz	300105	HLPA05D543B	3×380V 50Hz	5.5	12.5	5.5						
300107         HLPA001143B         3×380V 50Hz         11         24         11           300108         HLPA001543B         3×380V 50Hz         15         33         15           300109         HLPA18D543B         3×380V 50Hz         18.5         40         18.5           300110         HLPA002243B         3×380V 50Hz         22         47         22           300111         HLPA003043B         3×380V 50Hz         30         65         30           300112         HLPA003743B         3×380V 50Hz         37         80         37           300113         HLPA003743B         3×380V 50Hz         55         110         55           300114         HLPA005543B         3×380V 50Hz         75         152         75           300116         HLPA007543B         3×380V 50Hz         10         210         110           300117         HLPA01043B         3×380V 50Hz         132         253         132           300118         HLPA013243B         3×380V 50Hz         106         304         160           300121         HLPA018543B         3×380V 50Hz         200         380         200           300121         HLPA02043B         3×380V 50Hz	300106	HLPA07D543B	3×380V 50Hz	7.5	17.5	7.5						
300108         HLPA001543B         3×380V 50Hz         15         33         15           300109         HLPA18D543B         3×380V 50Hz         18.5         40         18.5           300110         HLPA002243B         3×380V 50Hz         22         47         22           300111         HLPA003043B         3×380V 50Hz         30         65         30           300112         HLPA003743B         3×380V 50Hz         37         80         37           300113         HLPA00543B         3×380V 50Hz         45         91         45           300114         HLPA00543B         3×380V 50Hz         55         110         55           300116         HLPA00543B         3×380V 50Hz         75         152         75           300116         HLPA019243B         3×380V 50Hz         10         210         110           300117         HLPA018243B         3×380V 50Hz         132         253         132           300118         HLPA018243B         3×380V 50Hz         200         380         200           300121         HLPA02043B         3×380V 50Hz         200         380         200           300121         HLPA022043B         3×380V 50Hz	300107	HLPA001143B	3×380V 50Hz	11	24	11	1					
300109         HLPA18D543B         3×380V 50Hz         18.5         40         18.5           300110         HLPA002243B         3×380V 50Hz         22         47         22           300111         HLPA003043B         3×380V 50Hz         30         65         30           300112         HLPA003043B         3×380V 50Hz         37         80         37           300113         HLPA00543B         3×380V 50Hz         45         91         45           300114         HLPA005543B         3×380V 50Hz         55         110         55           300116         HLPA007543B         3×380V 50Hz         75         152         75           300116         HLPA013243B         3×380V 50Hz         110         210         110           300117         HLPA016043B         3×380V 50Hz         132         253         132           30012         HLPA016043B         3×380V 50Hz         160         304         160           300121         HLPA020043B         3×380V 50Hz         200         380         200           300123         HLPA02043B         3×380V 50Hz         250         480         250           300124         HLPA02043B         3×380V 50Hz	300108	HLPA001543B	3×380V 50Hz	15	33	15						
300110         HLPA002243B         3×380V 50Hz         22         47         22           300111         HLPA003043B         3×380V 50Hz         30         65         30           300112         HLPA003743B         3×380V 50Hz         37         80         37           300113         HLPA003743B         3×380V 50Hz         45         91         45           300114         HLPA005543B         3×380V 50Hz         55         110         55           300115         HLPA007543B         3×380V 50Hz         75         152         75           300116         HLPA01043B         3×380V 50Hz         90         176         90           300117         HLPA011043B         3×380V 50Hz         132         253         132           300119         HLPA016043B         3×380V 50Hz         130         200         304         160           300120         HLPA016043B         3×380V 50Hz         200         380         200         300         380         200           300121         HLPA022043B         3×380V 50Hz         220         426         220         300         300         300         300         300         300         300         300         300 </td <td>300109</td> <td>HLPA18D543B</td> <td>3×380V 50Hz</td> <td>18.5</td> <td>40</td> <td>18.5</td> <td></td>	300109	HLPA18D543B	3×380V 50Hz	18.5	40	18.5						
300111         HLPA003043B         3×380V 50Hz         30         65         30           300112         HLPA003743B         3×380V 50Hz         37         80         37           300113         HLPA004543B         3×380V 50Hz         45         91         45           300114         HLPA005543B         3×380V 50Hz         55         110         55           300116         HLPA007543B         3×380V 50Hz         75         152         75           300116         HLPA01043B         3×380V 50Hz         90         176         90           300117         HLPA01043B         3×380V 50Hz         132         253         132           300118         HLPA013243B         3×380V 50Hz         160         304         160           300122         HLPA018543B         3×380V 50Hz         185         340         185           300123         HLPA020043B         3×380V 50Hz         200         380         200           300121         HLPA02043B         3×380V 50Hz         280         540         280           300125         HLPA03043B         3×380V 50Hz         300         580         300           300126         HLPA031543B         3×380V 50Hz	300110	HLPA002243B	3×380V 50Hz	22	47	22						
300112         HLPA003743B         3×380V 50Hz         37         80         37           300113         HLPA004543B         3×380V 50Hz         45         91         45           300114         HLPA005543B         3×380V 50Hz         55         110         55           300114         HLPA007543B         3×380V 50Hz         75         152         75           300116         HLPA009043B         3×380V 50Hz         90         176         90           300117         HLPA011043B         3×380V 50Hz         110         210         110           300118         HLPA013243B         3×380V 50Hz         132         253         132           300119         HLPA016043B         3×380V 50Hz         160         304         160           300122         HLPA018543B         3×380V 50Hz         200         380         200           300123         HLPA020043B         3×380V 50Hz         220         426         220           300121         HLPA028043B         3×380V 50Hz         280         540         280           300125         HLPA031543B         3×380V 50Hz         315         605         315           300126         HLPA031543B         3×380V 50Hz <td>300111</td> <td>HLPA003043B</td> <td>3×380V 50Hz</td> <td>30</td> <td>65</td> <td>30</td> <td></td>	300111	HLPA003043B	3×380V 50Hz	30	65	30						
300113         HLPA004543B         3×380V 50Hz         45         91         45           300114         HLPA005543B         3×380V 50Hz         55         110         55           300115         HLPA007543B         3×380V 50Hz         75         152         75           300116         HLPA009043B         3×380V 50Hz         90         176         90           300117         HLPA01043B         3×380V 50Hz         110         210         110           300118         HLPA013243B         3×380V 50Hz         132         253         132           300119         HLPA016043B         3×380V 50Hz         160         304         160           300121         HLPA018543B         3×380V 50Hz         200         380         200           300121         HLPA020043B         3×380V 50Hz         250         480         250           300127         HLPA028043B         3×380V 50Hz         280         540         280           300125         HLPA03043B         3×380V 50Hz         300         580         300           300126         HLPA031543B         3×380V 50Hz         315         605         315           300130         HLPA037543B         3×380V 50Hz </td <td>300112</td> <td>HLPA003743B</td> <td>3×380V 50Hz</td> <td>37</td> <td>80</td> <td>37</td> <td></td>	300112	HLPA003743B	3×380V 50Hz	37	80	37						
300114         HLPA005543B         3×380V 50Hz         55         110         55           300115         HLPA007543B         3×380V 50Hz         75         152         75           300116         HLPA009043B         3×380V 50Hz         90         176         90           300117         HLPA011043B         3×380V 50Hz         110         210         110           300118         HLPA013243B         3×380V 50Hz         132         253         132           300119         HLPA016043B         3×380V 50Hz         160         304         160           300121         HLPA020043B         3×380V 50Hz         200         380         200           300124         HLPA022043B         3×380V 50Hz         250         480         250           300125         HLPA030043B         3×380V 50Hz         280         540         280           300125         HLPA031543B         3×380V 50Hz         315         605         315           300126         HLPA031543B         3×380V 50Hz         345         660         345           300130         HLPA037543B         3×380V 50Hz         315         605         315           300130         HLPA040043B         3×380V 5	300113	HLPA004543B	3×380V 50Hz	45	91	45						
300115         HLPA007543B         3×380V 50Hz         75         152         75           300116         HLPA009043B         3×380V 50Hz         90         176         90           300117         HLPA011043B         3×380V 50Hz         110         210         110           300117         HLPA011043B         3×380V 50Hz         110         210         110           300118         HLPA013243B         3×380V 50Hz         132         253         132           300119         HLPA016043B         3×380V 50Hz         160         304         160           300122         HLPA018543B         3×380V 50Hz         200         380         200           300124         HLPA020043B         3×380V 50Hz         250         480         250           300121         HLPA025043B         3×380V 50Hz         280         540         280           300125         HLPA03043B         3×380V 50Hz         300         580         300           300126         HLPA031543B         3×380V 50Hz         315         605         315           300129         HLPA034543B         3×380V 50Hz         375         715         375           300130         HLPA040043B         3×380V	300114	HLPA005543B	3×380V 50Hz	55	110	55						
30016         HLPA009043B         3×380V 50Hz         90         176         90           300117         HLPA011043B         3×380V 50Hz         110         210         110           300117         HLPA011043B         3×380V 50Hz         132         253         132           300118         HLPA013243B         3×380V 50Hz         132         253         132           300119         HLPA016043B         3×380V 50Hz         160         304         160           300122         HLPA018543B         3×380V 50Hz         185         340         185           300123         HLPA020043B         3×380V 50Hz         200         380         200           300124         HLPA025043B         3×380V 50Hz         250         480         250           300127         HLPA028043B         3×380V 50Hz         280         540         280           300125         HLPA03043B         3×380V 50Hz         315         605         315           300126         HLPA031543B         3×380V 50Hz         345         660         345           300130         HLPA037543B         3×380V 50Hz         375         715         375           300131         HLPA040043B         3×380V	300115	HLPA007543B	3×380V 50Hz	75	152	75						
300117         HLPA011043B         3×380V 50Hz         110         210         110         00P-AB02           300118         HLPA013243B         3×380V 50Hz         132         253         132         00P-AB02           300119         HLPA016043B         3×380V 50Hz         160         304         160           300122         HLPA018543B         3×380V 50Hz         185         340         185           300123         HLPA020043B         3×380V 50Hz         200         380         200           300124         HLPA022043B         3×380V 50Hz         250         480         250           300127         HLPA028043B         3×380V 50Hz         280         540         280           300125         HLPA030043B         3×380V 50Hz         315         605         315           300126         HLPA031543B         3×380V 50Hz         345         660         345           300129         HLPA034543B         3×380V 50Hz         375         715         375           300130         HLPA040043B         3×380V 50Hz         375         715         375           300131         HLPA040043B         3×380V 50Hz         415         705         415	300116	HLPA009043B	3×380V 50Hz	90	176	90						
300118         HLPA013243B         3×380V 50Hz         132         253         132           300118         HLPA013243B         3×380V 50Hz         132         253         132           300119         HLPA016043B         3×380V 50Hz         160         304         160           300122         HLPA018543B         3×380V 50Hz         185         340         185           300123         HLPA020043B         3×380V 50Hz         200         380         200           300124         HLPA022043B         3×380V 50Hz         220         426         220           300121         HLPA025043B         3×380V 50Hz         280         540         280           300125         HLPA030043B         3×380V 50Hz         300         580         300           300126         HLPA031543B         3×380V 50Hz         345         660         345           300130         HLPA037543B         3×380V 50Hz         375         715         375           300131         HLPA040043B         3×380V 50Hz         415         795         415	300117	HLPA011043B	3×380V 50Hz	110	210	110						
300119         HLPA016043B         3×380V 50Hz         160         304         160           300122         HLPA018543B         3×380V 50Hz         185         340         185           300123         HLPA020043B         3×380V 50Hz         200         380         200           300124         HLPA022043B         3×380V 50Hz         220         426         220           300121         HLPA025043B         3×380V 50Hz         250         480         250           300127         HLPA028043B         3×380V 50Hz         280         540         280           300125         HLPA030043B         3×380V 50Hz         300         580         300           300126         HLPA031543B         3×380V 50Hz         315         605         315           300129         HLPA034543B         3×380V 50Hz         375         715         375           300130         HLPA04043B         3×380V 50Hz         375         715         375           300131         HLPA04043B         3×380V 50Hz         415         795         415	300118	HLPA013243B	3×380V 50Hz	132	253	132	OP-AB02					
300122         HLPA018543B         3×380V 50Hz         185         340         185           300123         HLPA018543B         3×380V 50Hz         200         380         200           300124         HLPA020043B         3×380V 50Hz         220         426         220           300121         HLPA025043B         3×380V 50Hz         250         480         250           300127         HLPA028043B         3×380V 50Hz         280         540         280           300125         HLPA030043B         3×380V 50Hz         300         580         300           300126         HLPA031543B         3×380V 50Hz         315         605         315           300129         HLPA034543B         3×380V 50Hz         375         715         375           300130         HLPA04043B         3×380V 50Hz         400         765         400           300131         HLPA041543B         3×380V 50Hz         415         795         415	300119	HLPA016043B	3×380V 50Hz	160	304	160	1					
300123         HLPA020043B         3×380V 50Hz         200         380         200           300123         HLPA020043B         3×380V 50Hz         200         380         200           300124         HLPA022043B         3×380V 50Hz         220         426         220           300121         HLPA025043B         3×380V 50Hz         250         480         250           300127         HLPA028043B         3×380V 50Hz         280         540         280           300125         HLPA030043B         3×380V 50Hz         300         580         300           300126         HLPA031543B         3×380V 50Hz         315         605         315           300129         HLPA034543B         3×380V 50Hz         375         715         375           300130         HLPA04043B         3×380V 50Hz         400         765         400           300132         HLPA041543B         3×380V 50Hz         415         795         415	300122	HLPA018543B	3×380V 50Hz	185	340	185						
300124         HLPA022043B         3×380V 50Hz         220         426         220           300121         HLPA025043B         3×380V 50Hz         250         480         250           300127         HLPA028043B         3×380V 50Hz         280         540         280           300125         HLPA030043B         3×380V 50Hz         300         580         300           300126         HLPA031543B         3×380V 50Hz         315         605         315           300129         HLPA034543B         3×380V 50Hz         375         715         375           300130         HLPA0404043B         3×380V 50Hz         415         795         415	300123	HLPA020043B	3×380V 50Hz	200	380	200						
300121         HLPA025043B         3×380V 50Hz         250         480         250           300121         HLPA025043B         3×380V 50Hz         250         480         250           300127         HLPA028043B         3×380V 50Hz         280         540         280           300125         HLPA030043B         3×380V 50Hz         300         580         300           300126         HLPA031543B         3×380V 50Hz         315         605         315           300129         HLPA034543B         3×380V 50Hz         375         715         375           300130         HLPA0404043B         3×380V 50Hz         400         765         400           300132         HLPA041543B         3×380V 50Hz         415         795         415	300124	HLPA022043B	3×380V 50Hz	220	426	220						
300121         HLPA020013D         3000000000000000000000000000000000000	300121	HLPA025043B	3×380V 50Hz	250	480	250	-					
300127         HLPA030043B         3×380V 50Hz         300         580         300           300125         HLPA030043B         3×380V 50Hz         300         580         300           300126         HLPA031543B         3×380V 50Hz         315         605         315           300129         HLPA034543B         3×380V 50Hz         345         660         345           300130         HLPA037543B         3×380V 50Hz         375         715         375           300131         HLPA040043B         3×380V 50Hz         400         765         400           300132         HLPA041543B         3×380V 50Hz         415         795         415	300127	HLPA028043B	3×380V 50Hz	280	540	280	-					
300125         HLPA031543B         3×380V 50Hz         315         605         315           300126         HLPA031543B         3×380V 50Hz         315         605         315           300129         HLPA034543B         3×380V 50Hz         345         660         345           300130         HLPA037543B         3×380V 50Hz         375         715         375           300131         HLPA040043B         3×380V 50Hz         415         795         415	300125	HLPA030043B	3×380V 50Hz	300	580	300	-					
300120         HLPA034543B         3×380V 50Hz         345         660         345           300130         HLPA037543B         3×380V 50Hz         375         715         375           300131         HLPA040043B         3×380V 50Hz         400         765         400           300132         HLPA041543B         3×380V 50Hz         415         795         415	300125	HLPA031543B	3×380V 50Hz	315	605	315						
300122         HLPA037543B         3×380V 50Hz         375         715         375           300131         HLPA040043B         3×380V 50Hz         400         765         400           300132         HLPA041543B         3×380V 50Hz         415         795         415	300120	HLPA034543B	3×380V 50Hz	345	660	345						
300130         HLIA057053D         3X360 V 50Hz         375         715         375           300131         HLPA040043B         3×380V 50Hz         400         765         400           300132         HLPA041543B         3×380V 50Hz         415         795         415	300120	HI PA037543B	3×380V 50Hz	375	715	375						
300132 HI PA041543B 3×380V 50Hz 415 705 415	300130	HI PA040043B	3~3801/ 50112	400	765	400	-					
	300132	HI PA041543P	3×380V 50H2	415	705	415						

Note: If 500-660kW converters are in demand, please make clear when ordering.

Note: When ordering, please confirm ordering number, model and specifications carefully.



Mechanical	dimen	sions							
Model	A	В	C	D	E	F	G	Н	Mechanical dimensions (Unit: mm)
HLPA00D423C HLPA0D7523C HLPA01D523C HLPA017543C HLPA01D543C HLPA02D243C	116	125	161	170	141	Φ5			
HLPA02D223B HLPA03D723B HLPA03D743B	128	140	238	250	157	Φ5			
HLPA05D523B HLPA07D523B	130	208	325	340	199	Φ7			
HLPA05D543B HLPA07D543B	184	200	306	318	180	Φ6	6		

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Mechanical	Mechanical dimensions								
Model	Α	В	С	D	E	F	G	Η	Mechanical dimensions (Unit: mm)
HLPA001123B HLPA001143B HLPA001543B HLPA001523B	182	257	437	457	242	Φ8	8		
HLPA18D523B HLPA18D543B HLPA002243B HLPA002223B	206	281	490	510	242	Φ8	8		
HLPA003043B	239	315	490	510	242	$\Phi 8$	8	Ī	
HLPA003023B HLPA003743B HLPA004543B HLPA005543B	250	345	650	670	325	Ф10	10		
HLPA003723B	300	450	768	800	350	Φ16	16	1	
HLPA004523B	300	450	828	860	350	Φ16	16		
HLPA005523B	500	650	868	900	400	Φ16	16	1	
HLPA007543B	300	450	768	800	350	Ф16	16		
HLPA009043B	300	450	828	860	350	Φ16	16		
HLPA007523B HLPA009023B HLPA011043B HLPA013243B	500	650	868	900	400	Ф16	16		
HLPA016043B	560	650	868	900	400	Ф16	16		
HLPA013243BG ~ HLPA016043BG	600	600	1649	90	420	90	400	Ф16	There are four lifting rings on the top of the cabinet, their height is : $36$ mm for $110 \sim 250$ kW, $43$ mm for $280 \sim 415$ kW.
HLPA018543B HLPA020043B HLPA022043B HLPA025043B	600	600	1805	90	420	90	400	Ф16	
HLPA028043B HLPA030043B HLPA031543B	685	600	2225	90	505	90	400	Ф16	
HLPA034543B HLPA037543B HLPA040043B HLPA041543B	855	600	2279	90	675	90	400	Ф16	$\begin{array}{c} \begin{array}{c} & \\ & \\ & \\ \end{array} \end{array} \\ \hline \\ \hline \\ \hline \\ \end{array} \\ \hline \\ \hline \\ \end{array} \\ \hline \\ \hline$





Note: The dimensions of OP-AB01 and OP-AC01 are the same, but the interfaces of them are different.

Note: The dimensions of OP-AB01 and OP-AB02 are different, but the interfaces of them are the same.

# Options

A dedicated cable is available for remote communication between local control panel (LCP) and frequency converter. The interfaces of the cable are common for LCP of HLP-A, HLP-C<sup>+</sup>, HLP-P, HLP-F, HLP-J, HLP-M, HLP-H and HLP-CP series converters. User can select suitable length according to the following form.

Ordering number	Length (m)	Ordering number	Length (m)	Ordering number	Length (m)
335130	1	335134	7	335138	32
335131	2	335135	12	335139	11
335132	3	335136	10	335146	20
335133	5	335137	8	335147	50

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# HLP-C<sup>+</sup> Series Mini Frequency Converter

HLP-C<sup>+</sup> series mini frequency converter, which is particularly designed for low-power motors, has smaller size and better performance. It has PID controller, simple PLC, wobble, multi-speed, automatic voltage regulation and energy-saving functions, etc. Its output frequency range is 0.10-600.00Hz.

 $HLP-C^+$  series mini frequency converter has been widely used in a variety of applications for its high output torque, good anti-interference capacity, low noise, useful functions.

Power range: 0.4-1. 5kW (1 & 3×220V), 0.75-2.2kW (3×380V)





#### **Functions and Features**

- It has high reliability with PIM at the core;
- Lt has a wider tolerance for the changes of supply voltage;
- **4** It has high output torque which can reach 150% while 1Hz;
- **4** Its ramp time can be 0.1s for high braking torque ;
- 4 It has low noise for its user-definable carrier frequency which can be as high as 16kHz;
- **It has PID controller and simple PLC function;**
- **4** It takes up less space for its smaller size;
- Lt has wobble function which is used in chemical fiber, printing and dyeing industries;
- It has quasi winding and unwinding function which can be used in the situation of keeping the line speed constant in a definite accuracy;
- **u** It can lock parameters to avoid parameters modified by mistake;
- It has Holip Communication Protocol and Modbus Protocol, and it is easier for user to build up centralized control system.



Technica	l Data					
Modulation		SPWM				
AC line supply		400V: 345-440V; 230V: 170-230V				
4 Digital Display & Status Indicator Lamp		Displaying frequency, current, revolution, voltage, counter, temperature,				
		forward or reverse, fault, etc.				
Communicatio	n Mode	RS 485 serial communication				
Communicatio	n Protocol	Holip Communication Protocol				
Communicatio		Modbus Protocol				
		Ambient Temperature: $-10 \sim 40$ °C				
Surroundings		Humidity: 0- 95% Relative Humidity (Non-dewfall)				
		Vibration: Below 0.5g				
	Output Frequency Range	0.10 ~ 600.00Hz				
	Accuracy	Digital: 0.01% (-10~40℃)				
		Analog: 0.1% (25±10°C)				
	Reference Resolution	Digital: 0.1Hz				
Frequency		Analog: 1% of Maximum Output Frequency				
Control	Output Frequency Resolution					
	LCP Frequency Setting	By the buttons of $//$				
	Analog Frequency Setting	External 0-5V, 0-10V, 4-20mA, 0-20mA				
	Other functions	Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass				
	Denne time	function (Three settable frequency bypasses), etc.				
_	Kamp ume	0.1-6500sec (There are four selectable ramp up / down time)				
	V/F Curve	and frequencie.				
		Maximum torque compensation can reach 10%				
	Iorque Characteristic	Startup torque can reach 150% while 1Hz				
General	Programmable Digital Input	Six programmable digital inputs for 8-speed control, Simple PLC, ramp				
Control	Frogrammaole Digital input	time switching, up and down function, counter, emergency stop, etc				
control	Programmable Digital Output	Two programmable digital outputs for the status of running, below start				
		frequency, counter, fault, the status of simple PLC and alarm.				
		Automatic Voltage Regulation, Ramp to stop or Coast, DC brake,				
	Other functions	Automatic reset and restart, Flying start, Simple PLC, Wobble, quasi				
		winding and unwinding function, Automatic energy-saving function,				
		User-definable Carrier frequency (1.5-16kHz), etc.				
	Over voltage Protection	220V Class: DC Voltage $> 400V$				
		220V  Class: DC Voltage  > 800V				
	Under voltage Protection	220 V Class: DC Voltage $< 200$ V				
Protections	Flying start after transient supply loss	Flying start after transient supply loss				
Tiotections	Anti-stall Function	Prevent stalling when running, accelerating and decelerating				
	Output short circuit Protection	Electric circuit protection				
	Supar short creater rotection	Heat sink over-temperature protection Restriction against reverse Fault				
	Other functions	Reset, Parameter lock, etc.				



#### Wiring Diagram and Terminal Description

The wiring of the converter is divided into two parts: main circuit and control circuit. The following drawing is the factory standard wiring diagram of  $HLP-C^+$  series converter. The terminals should be connected correctly as the wiring diagram. (See the user manual for details).



Symbol	Description							
R, S, T	Power supply terminals (For single-phase, connect win	res to any two terminals)						
U, V, W	Output terminals							
P, Pr	Braking Resistor terminals							
Е	Ground terminal							
AI	Current input terminal							
AM	Programmable Pulse/Current Analog Output							
+10V	10V DC supply							
VI	Voltage input terminal							
DCM	Common terminal for digital inputs							
GND	Common terminal for analog inputs							
Symbol	Description	Factory Setting						
FOR	Programmable Digital Input	Forward						
REV	Programmable Digital Input	Reverse						
RST	Programmable Digital Input	Reset						
SPH	Programmable Digital Input	High speed						
SPM	Programmable Digital Input Medium speed							
	i logrammaole Digitar input	Medium speed						
SPL	Programmable Digital Input	Low speed						
SPL DRV	Programmable Digital Input Programmable Digital Output (Optical coupling)	Low speed Running						
SPL DRV FA, FB	Programmable Digital Input Programmable Digital Output (Optical coupling) Programmable Digital output (Normal close)	Image: Neuronal Speed       Low speed       Running       Fault						



# Electrical Data

Ordering	Madal	Maing supply	Power	Output Current	Motor
number	Model	Wrains suppry	( <b>kW</b> )	( <b>A</b> )	( <b>kW</b> )
302200	HLPC+00D423B	1 & 3×220V 50/60Hz	0.4	2.5	0.4
302201	HLPC+0D7523B	1 & 3×220V 50/60Hz	0.75	5.0	0.75
302202	HLPC+01D523B	1 & 3×220V 50/60Hz	1.5	7.0	1.5
302203	HLPC+0D7543B	3×380V 50/60Hz	0.75	2.7	0.75
302204	HLPC+01D543B	3×380V 50/60Hz	1.5	4.0	1.5
302205	HLPC+02D243B	3×380V 50/60Hz	2.2	5.0	2.2

Note: When ordering, please confirm ordering number, model and specifications carefully.





Note: The remote communication cable for LCP of  $HLP-C^+$  series refers to HLP-A part.



# **HLP-V/VS Series Vector Frequency Converter**

HLP-V/VS series converter has unique VVC<sup>+</sup> vector control system for torque and speed control of induction motors. It offers excellent dynamic behavior and stability both when the speed reference and the load torque have changed. Its overload capacity can reach 160%, and startup torque can be as high as 180%.

HLP-V/VS is user friendly, easy to operate and program. It has automatic motor adaptation function which ensures the optimum matching between converter and motors.

HLP-VS series converter is smaller than HLP-V series, taking up smaller space. But this series converter canit be installed brake unit and DC reactor inside.



# Power range of HLP-V: 11-400kW (3×380V), 15-450kW (3×380V) for light load. Power range of HLP-VS: 11-45kW (3×380V), 15-55kW (3×380V) for light load.

#### **Functions and Features**

- It has VVC<sup>+</sup> vector control, speed control range can reach 1: 100 when open loop and 1: 1000 when closed loop, 4 resolution is 0.003Hz;
- It has excellent torque characteristic, closed loop: 160% zero velocity holding torque (60s); 180% startup torque (0.5s); 4
- It has torque compensation function, and system response time is as short as 3ms;
- **.** It has AMA (Automatic Motor Adaptation) function, which can exactly calculate motor internal parameters and keep motor in its best working condition;
- -It has torque compensation function at high and low speed, which can ensure motor startup smoothly and run steady;
- 4 It has slip compensation function, which can compensate the deviation between actual velocity and reference;
- ..... It has good DC brake capacity, and is qualified to frequently DC brake;
- 4 It has four menus, which can be switched by communication or digital terminals;
- 4 It is easier to operate for user, the LCP of the converter can hot plug and copy parameters;
- 4 It has torque control function, which can estimate output torque through motor current, speed and so on;
- 4 It has flying start function, which can detect the velocity of motor quickly, and then drive motor to the reference;
- 4 It has kinetic backup function, that is when power supply is cut off, the converter can still run and automatic decrease output frequency (this function is suited to mass load);
- The fan of heat-sink is controlled intelligently, having much longer service life; **.**
- 4 It has FC protocol, and it is easier for user to build up centralized control system.



Technical Data	1						
AC line gunnly	Supply Fre	equency			48~62 Hz		
AC fine suppry	Supply Vo	ly Voltage			$380-440V \pm 10\%$		
	Output Vo	ltage			0~100% supply voltage		
					0-1000 Hz (HLPV4015-HLPV4050)		
Output Data	Output Fre	equency			0-450 Hz (HLPV4060-HLPV4250)		
Output Data					0-300 Hz (HLPV4350-HLPV4550)		
	Resolution	ı			± 0.003 Hz		
	Overload o	capacity			110% / 160% Rated Current (60 sec)		
	Control sit	e			LCP; Programmable Digital Inputs; Communication		
	Reference	source			LCP; Analog; Communication		
	Speed Ref	erence Resol	ution		Digital: 0.001Hz Analog: 1% of Maximum Output Frequency		
	System res	sponse time			3ms		
	Speed, cor	ntrol range			1: 1000 (closed-loop); 1: 100 (open-loop)		
Control	Smood Ac	auroau (anon	laan)		<1500 rpm, Max. error: ± 7.5 rpm		
Characteristics	Speed, Act	curacy (open-	-100p)		>1500 rpm, Max. error: $\pm 0.5\%$ of actual speed		
	Speed Ac	ouroov (aloca	d loor	n)	<1500 rpm, Max. error: ± 1.5 rpm		
	Speed, Act	curacy (crose	/u-100j		>1500 rpm, Max. error: $\pm 0.1\%$ of actual speed		
					0- 150 rpm, Max. error: $\pm$ 20% of rated torque		
	Torque con	ntrol Accurac	cy (ope	en-loop)	150-1500rpm, Max. error: $\pm$ 10% of rated torque		
					>1500rpm, Max. error: $\pm$ 20% of rated torque		
	Torque con	ntrol Accurac	cy (clo	osed-loop)	Max. error: ±5% of nominal torque%		
		No. of prog	gramm	able digital inputs	8, Terminal No.: 16, 17, 18, 19, 27, 29, 32, 33		
		Voltage Level			0-24V DC (PNP Positive Logic)		
	Digital Input	Max. Input Voltage			28V DC		
		Logic Voltage Level			"0"< 5V DC; "1">10V DC		
		Input Resistance			2kΩ		
		Scanning time per input			3ms		
			Nur	nber of Inputs	2, Terminal No.: 53, 54		
		Voltage	Volt	tage Level	$0 \sim \pm 10 \text{V DC}$		
			Input Resistance		10kΩ		
	Analog		Number of Input		1, Terminal No.: 60		
	Input	Current	Cur	rent Range	$0/4 \sim \pm 20 \text{ mA}$		
	•		Inpu	it Resistance	200 Ω		
		Resolution			10  bit + sign		
		Input Accur	racy		Max. error: 1% of full range		
		Scanning ti	ime pe	er input	3 ms		
		Number of	Input	s	4, Terminal No.: 17, 19, 32, 33		
Control Terminals		Input		Terminal No.:17	Max. Frequency: 5 kHz		
		Frequenc	cy	Terminal No.:29, 32, 33	Max. Frequency: 20 kHz (PNP open collector)		
					Max. Frequency: 65 kHz (Push-Pull)		
	Encoder/	Voltage Lev	vel		0-24V DC (PNP Positive Logic)		
	Pulse	Lagia Valta	a ca Ta		Max. input voltage: $28 \text{ v}$ DC		
	Input	Logic Volte	ige Le	evel .	0 < 50  DC, 1 > 100  DC		
		Soonning ti	mance	ne imant	2 KS2		
		Baselution	ine pe	er input	3 IIIs		
		Resolution		Tauminal No. 17, 20, 22	100  III + Sign		
		Accurac	y	Terminal No. 17, 29, 33	Max. error: 0.1% of full range (100Hz-1KHZ)		
		Number of	Outpu	101111111111111017, 29, 55	2. Terminal No : 42. 45		
	Digital	Voltage Lee	val	uio	2, formiliar No., $42, 43$		
	/Pulse	Minimum 1	vei load to	around	600 O (Terminal 30)		
	Output	Frequency	Rana	s ground	0.32  [Himma 37]		
		Current Dr	Range	A A courson	0.32 KHZ 0/4 20 mA May arrow 1.50/ of full range		
	Analog	Movimum	inge ar	a ground (Terminal 20)	500 O		
	Output	Recolution	ioau ti	o ground (Terminar 59)	8 hit		



Technical Data	a						
	24W DO	Terminal	No.	12, 13			
	24V DC Supply	Max. Loa	ıd	200 mA			
	Suppry	Ground to	erminal No.	20, 39			
		Control	Output Terminal	1, Terminal No.: 04-05 (Normal open)			
		cond	Maximum Load (AC)	50V AC, 1A, 50VA			
		Caru	Maximum Load (DC)(IEC947)	25V DC, 2A; 50V DC, 1A; 50W			
Control Terminals	Relay		Output Terminal	2			
	Output	Dowor	Terminal No.	01-03 (Normal close), 01-02 (Normal open)			
		card	Maximum Load (AC)	250V AC, 2A, 500 VA			
		Caru	Maximum Load (DC)(IEC947)	25V DC, 2A / 50V DC, 1A; 50W			
			Minimum Load (DC)	24V DC, 10mA / 24V AC, 100mA			
	RS485	Terminal No.		68 (TX+, RX+), 69 (TX-, RX-)			
	10405	Commun	ication Protocol	FC Protocol			
	Ambient temperature			-10°C~40℃			
	Humidity			0-95% Relative Humidity (Non-dewfall)			
Surrounding	Vibration			Below 0.5g			
	Max. altitu	ide above s	ea level	1000m			
	Enclosure			IP20			
	Electronic	Electronic motor thermal protection against overload					
	Overtemperature protection: Temperature monitoring of heat-sink ensures that the converter will cut off if the						
	temperatu	temperature reaches 90°C, and an overtemperature can only be reset when the temperature of the heat-sink has					
	fallen belo	ow 60°C.					
Protections	The conve	rter is prote	ected against short-circuiting and ea	arth fault on output terminals U, V, W.			
	voltage 9	oring of in ets too high	termediate circuit voltage ensures i	that the converter will cut off if the intermediate circuit			
	If a motor	phase is mi	issing the converter will cut off				
	If there is	a main faul	t, the converter will carry out a con	trolled ramp-down.			
	If a main r	hase is mis	sing the converter will cut out wh	en a load is placed on the motor.			

### Wiring Diagram and Terminal Description

The wiring of the converter is divided into two parts: main circuit and control circuit. The following drawing is the factory standard wiring diagram of HLP-V/VS. The terminals should be connected correctly as the wiring diagram. (See user manual for details).





Electrical Data								
Ordering number	Model	Mains supply	Power (kW)	Output Current (A)	Overload Current (A)(60s)	Motor (kW)		
50007000	HLPV4015V10	3×380V 50/60Hz	11	24	38.4	11		
50007001	HLPV4020V10	3×380V 50/60Hz	15	32	51.2	15		
50007002	HLPV4025V10	3×380V 50/60Hz	18.5	37.5	60	18.5		
50007003	HLPV4030V10	3×380V 50/60Hz	22	44	70.4	22		
50007004	HLPV4040V10	3×380V 50/60Hz	30	61	97.6	30		
50007005	HLPV4050V10	3×380V 50/60Hz	37	73	116.8	37		
50007006	HLPV4060V10	3×380V 50/60Hz	45	90	135	45		
50007007	HLPV4075V10	3×380V 50/60Hz	55	106	159	55		
50007008	HLPV4100V10	3×380V 50/60Hz	75	147	221	75		
50007009	HLPV4125V10	3×380V 50/60Hz	90	177	266	90		
50007010	HLPV4150V10	3×380V 50/60Hz	110	212	318	110		
50007011	HLPV4175V10	3×380V 50/60Hz	132	260	390	132		
50007012	HLPV4215V10	3×380V 50/60Hz	160	315	473	160		
50007013	HLPV4250V10	3×380V 50/60Hz	200	395	592.5	200		
50007014	HLPV4350V10	3×380V 50/60Hz	250	480	720	250		
50007015	HLPV4400V10	3×380V 50/60Hz	315	600	900	315		
50007016	HLPV4475V10	3×380V 50/60Hz	355	658	987	355		
50007017	HLPV4550V10	3×380V 50/60Hz	400	695	1042.5	400		

Note: HLPV4015-4100V10 converters have braking unit and DC reactor built-in as optional, and HLPV4125-4550V10 converters

has DC reactor inside as standard.

Note: User can order the converters with braking unit or DC reactor as required only among 11-75kW of converters.

Ordering number	Model	Mains supply	Power (kW)	Output Current (A)	Overload Current (A)(60s)	Motor (kW)
50007020	HLPVS4015V10	3×380V 50/60Hz	11	24	38.4	11
50007021	HLPVS4020V10	3×380V 50/60Hz	15	32	51.2	15
50007022	HLPVS4025V10	3×380V 50/60Hz	18.5	37.5	60	18.5
50007023	HLPVS4030V10	3×380V 50/60Hz	22	44	70.4	22
50007024	HLPVS4040V10	3×380V 50/60Hz	30	61	97.6	30
50007025	HLPVS4050V10	3×380V 50/60Hz	37	73	116.8	37
50007026	HLPVS4060V10	3×380V 50/60Hz	45	90	135	45

Note: HLP-VS converters can't be installed DC reactor and braking unit inside.

Note: When ordering, please confirm ordering number, model and specifications carefully.









### Accessories

A dedicated cable is available for remote communication between local control panel (LCP) and frequency converter. User can select length of the cable according to the following form.

Ordering number	Length	Ordering number	Length	Ordering number	Length
335020	1m	335021	2m	335022	5m

Note: Ordering number of remote mounting kit is 50008002, which is for mounting LCP into the cabinet door.



# HLP-SV Series Vector Frequency Converter

HLP-SV series converter has unique VVC<sup>+</sup> vector control system for torque and speed control of induction motors. It is specially developed for low-power motors and designed book-size, dust-proof, good cooling capacity. The converter can be installed side by side and really save space.

With built-in DC braking function, HLP-SV can transform kinetic energy in the application into braking power to slow down the motor. A brake chopper is built in the converters from 1.5kW upwards, which can save user's cost. It has PI controller, automatic motor turning function and smart logic controller (order on demand).



Power range: 0.18~2.2kW (1×200-240V), 0.25~3.7kW (3×200-240V), 0.4~22kW (3×380-480V)

#### **Functions and Features**

- **u** It has two menus, which can be switched by communication or digital terminals;
- It has excellent torque characteristic, and response time of torque compensation is as short as 3ms;
- LCP of converter can hot plug and copy parameters, it is easier to operate for user;
- It has SLC (Smart Logic controller) (order on demand), and it is easy for user to program;
- It has AMT (Automatic Motor Turning) function, which can calculate motor internal parameters and keep motor in its best working condition;
- # It has slip compensation function, which can compensate the deviation between actual velocity and reference;
- 4 It has torque compensation function at high and low speed, which can ensure motor startup smoothly and run steady;
- Lt has good DC brake capacity, and is qualified to frequently DC brake;
- It has flying start function, which can catch the velocity of motor quickly and drive motor to the reference;
- It can be started up by a pulse;
- It has FC protocol and Modbus protocol, and it is easier for user to build up centralized control system.



Iechnical Data							
Supply Dowor	Supply Frequency	T			48~62 Hz		
Supply Power	Supply Voltage				3×380-480V±10%; 1 & 3×200-240V ±10%		
	Output Voltage				0~100% of Supply Voltage		
	Output Frequency	,		0~200 Hz ( <b>VVC</b> <sup>+</sup> ), 0~400 Hz (V/F)			
Output Data	Overload capacity	,			150% Rated Current		
	Ramp time				0.05~3600s		
Control	Control site				LCP; Programmable Digital Inputs; Communication		
Characteristics	Reference source				LCP; Analog; Communication		
		Number of	f Inputs		5. Terminal No.: 12, 18, 19, 27, 29		
		Male I	.1		0-24V DC (PNP or NPN)		
	Programmable	voltage Le	evel		Max. Input Voltage: 28V DC		
	Digital Input	Logic Volt	age Level		PNP: "0"< 5V DC; "1" >10V DC		
					NPN: "0" >19V DC; "1" < 14V DC		
		Input Resi	stance	r ,			
		Valtaga	Number of I	input	I, Ierminal No.: 53		
		voltage	Voltage Lev	el	0~10V DC, Max. Input Voltage 20 V		
	Analog Input		Number of 1	Inpute	10 K22 2. Terminal No : 53, 60		
		Current	Current Ran	nge	2, reminar No.: 55, 60		
		Current	Input Resist	ance			
		Number of	f Output	unee	1 Terminal No. 42		
		Output Current Range			0/4-20 mA		
	Analog Output	Max Load			500 Q		
Control	Analog Output	Output Ac	curaev		0.5% of full range		
Terminals		Resolution			8 hit		
	2410 DC	Terminal No.			12		
	24V DC Supply	Max Load			200 mA		
		Terminal N	Jo		68 (TY + PY +) 60 (TY - PY -) 61 (com)		
	K8485 Communication	Communic	no. Protoco	1	FC Protocol Modbus Protocol		
					1 Terminal		
		Control	Output Terminal		No.: 01-02 (Normal open), 01-03 (Normal close)		
	Relay Output		Maximum Load	Resistive	250V AC 2A		
	5 1	card		Load	30V DC 2A		
				Inductive	250V AC 0.2A		
				Load	24V DC 0.1A		
	10V DC	Terminal N	NO.		50		
	Supply	Output Vo	Itage		10.5±0.5V		
	En al a anna	Max. Loac	Current		25 mA		
	Enclosure						
	Ambient temperat	ure			$-10 \text{ C} \sim 40 \text{ C}$ , derating for high ambient temperature		
Surrounding	Humidity				5%-95% Relative Humidity (Non-dewfall)		
	Vibration				Below 1.0g		
	Max. altitude abo <sup>,</sup>	ve sea level			3000m (Derating for altitude over 1000m)		
	Electronic motor 1	thermal prote	ection against	overload			
	Overtemperature	protection: '	Temperature r	nonitoring of	heat-sink ensures that the converter will trip when the		
	temperature reach	es 95±5°C,	and an overter	mperature can	only reset when the temperature of heat-sink has fallen		
	below 70±5℃.						
Protections	The converter is p	rotected aga	inst short-circ	uiting on the o	output terminals U, V and W.		
Trotections	The converter is p	rotected aga	inst earth faul	t on output ter	minals U, V, W.		
	The converter wil	l trip if the in	ntermediate ci	rcuit voltage g	gets too high or too low.		
	If a motor phase is	s missing, th	e converter w	ill trip and issu	ue an alarm.		
	If there is a main t	fault, the cor	nverter will ca	rry out a contr	olled ramp-down and issue an alarm.		
	If a main phase is	missing, the	converter wil	l trip and issue	e an alarm.		



#### Wiring Diagram and Terminal Description

The wiring of the converter is divided into two parts: main circuit and control circuit. The following drawing is the factory standard wiring diagram of HLP-SV. The terminals should be connected correctly as the wiring diagram. (See user manual for details).



Symbol	Description						
$I_1(I)$ $I_2(I)$	Power supply terminals						
L1(L), L2, L3(N)	(Connect to L1 (L), L3 (N) for single phase)						
U, V, W	Output terminals						
UDC+, UDC-	DC bus terminals						
BR+, BR-	Braking Resistor terminals (1.5kW and a	bove)					
PE	Ground terminal						
50	+10V DC Supply						
53	Analog Input (0-10V)						
60	Analog Input (0-20mA)	Analog Input (0-20mA)					
55	Common terminal for analog inputs						
42	Analog Output (0/4-20mA)						
68, 69, 61	RS485 Communication Terminals						
12	24V DC Supply						
20	Common Terminal for Digital signal						
Symbol	Description	Factory Setting					
01-03	Programmable Relay Outputs	No function					
18	Programmable Digital Input	Startup					
19	Programmable Digital Input	Reverse					
27	Programmable Digital Input	No function					
29	Programmable Digital Input	Jogging					
33	Programmable Digital Input	No Function					

Note: A brake chopper is built in the converter from 1.5kW upwards as standard.



Electrical	l Data				
Ordering number	Model	Mains supply	Power (kW)	Output Current (A)	Motor (kW)
30002100	HLPSV0D1821A	1×200-240V 50/60Hz	0.18	1.2	0.18
30002101	HLPSV00D421A	1×200-240V 50/60Hz	0.4	2.5	0.4
30002102	HLPSV0D7521A	1×200-240V 50/60Hz	0.75	4.2	0.75
30002103	HLPSV01D521A	1×200-240V 50/60Hz	1.5	6.8	1.5
30002105	HLPSV02D221A	1×200-240V 50/60Hz	2.2	9.6	2.2
30002300	HLPSV0D2523A	3×200-240V 50/60Hz	0.25	1.5	0.25
30002301	HLPSV00D423A	3×200-240V 50/60Hz	0.4	2.5	0.4
30002302	HLPSV0D7523A	3×200-240V 50/60Hz	0.75	4.2	0.75
30002303	HLPSV01D523A	3×200-240V 50/60Hz	1.5	6.8	1.5
30002305	HLPSV02D223A	3×200-240V 50/60Hz	2.2	9.6	2.2
30002307	HLPSV03D723A	3×200-240V 50/60Hz	3.7	15.2	3.7
30004301	HLPSV00D443A	3×380-480V 50/60Hz	0.4	1.2	0.4
30004302	HLPSV0D7543A	3×380-480V 50/60Hz	0.75	2.2	0.75
30004303	HLPSV01D543A	3×380-480V 50/60Hz	1.5	3.7	1.5
30004304	HLPSV02D243A	3×380-480V 50/60Hz	2.2	5.3	2.2
30004306	HLPSV03D043A	3×380-480V 50/60Hz	3.0	7.2	3.0
30004308	HLPSV04D043A	3×380-480V 50/60Hz	4.0	9.0	4.0
30004309	HLPSV05D543A	3×380-480V 50/60Hz	5.5	12	5.5
30004310	HLPSV07D543A	3×380-480V 50/60Hz	7.5	15.5	7.5
30004311	HLPSV001143A	3×380-480V 50/60Hz	11	23.0	11
30004312	HLPSV001543A	3×380-480V 50/60Hz	15	31.0	15
30004313	HLPSV18D543A	3×380-480V 50/60Hz	18.5	37.0	18.5
30004314	HLPSV002243A	3×380-480V 50/60Hz	22	43.0	22

Note: HLP-SV converter have SLC (Smart Logic Controller) function as optional, it need order on Demand.

Note: When ordering, please confirm ordering number, model and specifications carefully.

Note: The LCP of HLP-SV converter is option. It has to been separately ordered when needed.

Mechanical dimensi	ions						
Model	Α	B	С	D	Е	F/G	Mechanical dimensions (Unit: mm)
HLPSV0D1821A							В
HLPSV00D421A	55	70	141	150	148	Φ4.5	
HLPSV0D7521A							
HLPSV01D521A	59	75	167	176	168	Φ4.5	<u>A.** 37 37</u>
HLPSV02D221A	69	90	226	239	194	Φ5.5	
HLPSV0D2523A							
HLPSV00D423A	55	70	141	150	148	Φ4.5	
HLPSV0D7523A							
HLPSV01D523A	59	75	167	176	168	Φ4.5	
HLPSV02D223A	60	00	226	220	104	<b>A5</b> 5	-
HLPSV03D723A	09	90	220	239	194	$\Psi 3.5$	
HLPSV00D443A	55	70	1.4.1	150	140	<b>A</b> 4.5	
HLPSV0D7543A	55	70	141	150	140	$\Psi$ 4.5	
HLPSV01D543A	50	75	167	176	169	<b>A</b> 15	
HLPSV02D243A	59	15	107	170	108	Ψ4.5	
HLPSV03D043A							
HLPSV04D043A	60	00	226	220	104	<b>A5</b> 5	<u></u>
HLPSV05D543A	09	90	220	239	194	Ψ3.5	单位: mm
HLPSV07D543A							
HLPSV001143A	07	125	272	202	241	<b>ው</b> 7	
HLPSV001543A	9/	123	215	292	241	$\Psi$	
HLPSV18D543A	140	165	215	225	248	<b>ው</b> 7	
HLPSV002243A	140	105	515	555	248	Ψ/	

Note: If the converter is equipped with the LCP with potentiometer, the value of "E" will be added 7.6mm.



#### Dimensions of LCP

HLP-SV converter can be equipped with two kinds of LCP: with potentiometer and without potentiometer. The LCP without potentiometer has  $Up_{\nu}$  Down function directly by pressing navigation keys, and the LCP with potentiometer can set frequency reference through the potentiometer.



Note: The mechanical dimensions of LCP with and without potentiometer are the same.

#### Accessories

A dedicated mounting kit is available for mounting the local control panel in the cabinet. User can select length of the cable according to the following form. Also, user can select mounting kit or just only the cable.which is used for remote communication between LCP and the converter.

Ordering number (mounting kit)	Cable Length	Ordering number (Only cable)	Cable Length
300B0102	3m	132B4037	3m
300B0103	1m	132B4055	1m
300B0104	2m	132B4056	2m
300B0105	5m	132B4057	5m

Note: The mounting kit contains a, a metal plate, three screws for fixing metal plate, and four screws.



# **HLP-NV Series Vector Frequency Converter**

HLP-NV series converter has unique VVC<sup>+</sup> vector control system for torque and speed control of induction motors. It is specially developed for low-power motor and designed book-size, dust-proof, and good cooling capacity. The converter can be installed side by side and really save space. It has PI controller, automatic motor turning function, and mechanical brake function.



#### Power range: 0.18~2.2kW (1×200-240V), 0.25~3.7kW ( 3×200-240V), 0.37~22kW (3×380-480 V)

#### **Functions and Features**

- Let the sexcellent torque characteristic, and the response time of torque compensation is as short as 2ms;
- It has AMT (Automatic Motor Turning) function, which can exactly calculate motor internal parameters and keep motor in its best working condition;
- It has slip compensation function, which can compensate the deviation between actual velocity and reference, keeping the speed constant;
- It has torque compensation function at both high speed and low speed, which can ensure motor startup smoothly and run steadily;
- It is qualified to frequently DC brake for good DC brake function;
- **4** It has flying start function, which can catch the velocity of motor quickly and drive motor to the reference;
- It can be startup by a pulse;
- Smart logic controller was built-in, making PLC omissible in most cases;
- A brake chopper is built in the converter from 1.5kW upwards, saving user's cost;
- 4 It has five programmable digital inputs, and each of them has almost 30 functions to set;
- 4 It has FC protocol and Modbus protocol, and it is easier for user to build up centralized control system.



Technical Da	ta				
	Supply Frequency				48~62Hz
<b>Power Supply</b>	Supply Frequency     4       Supply Voltage     4				3×380-480V±10% 1 & 3×200-240V ±10%
	Output Voltage				Three phases 0~100% Supply Voltage
	Output Frequency				$0 \sim 200 \text{ Hz} (\text{VVC}^+)$ , $0 \sim 400 \text{ Hz} (\text{V/F})$
Output Data	Overload capacity	,			150% Rated Current
	Ramp time				0.05~3600 s
Control	Control site				LCP: Programmable Digital Inputs: Communication
Characteristics	Reference source				LCP; Analog; Communication
		Number of	of Inputs		5, Terminal No.: RUN, F/R, RST, JOG, EMS
	D	Voltage L	level		0-24VDC (PNP or NPN); Max. Input Voltage: 28VDC
	Digital Input	Laria Va	lta en Larval		PNP: "0"<5VDC; "1">10VDC
	Digitai input	Logic vo	itage Level		NPN "0">19VDC; "1" < 14VDC
		Input Res	sistance		4 kΩ
			Num	ber of Input	1, Terminal No.: VIN
		Voltage	e Volta	ge Level	0~10VDC; Max. Input Voltage20V
	Analog Input		Input	Resistance	10 kΩ
	Analog input		Num	ber of Inputs	2, Terminal No.: VIN, AIN
		Current	t Curre	ent Range	0~20 mA; Maximum input current: 30mA
			Input	Resistance	200Ω
		Number of	of Output		1, Terminal No. AO
		Output C	urrent Rang	ge	0/4-20mA
~ · · ·	Analog Output	Max. Load			500Ω
Control		Output Accuracy			0.5% of full range
lerminal		Resolutio	m		8 bit
	24V DC	Terminal	No.		EV
	Supply	Max. Load			200mA (M1)
	RS485	Terminal No.			RS+ (TX+, RX+), RS- (TX-, RX-), COM (com)
	Communication	Communication Protocol		tocol	FC Protocol, Modbus Protocol
			Output Terminal		1, Terminal No : FA-FB (Normal open), FA-FC (Normal close)
		Control		Resistive	250V AC 2A
	Relay Output	card	Maxim	Load	30V DC 2A
			um	Inductive	250V AC 0.2A
			Load	Load	24V DC 0.1A
		Terminal	No.		+10V
	10V DC	Output V	oltage		10.5±0.5V
	Supply	Max Load Current			25mA
	Enclosure				IP20
	Ambient Tempera	ture			$-10^{\circ}$ C $\sim$ 40 $^{\circ}$ C, derating for high ambient temperature
	Humid	ity			5%-95% Relative Humidity (Non-dewfall)
Surrounding	Vibrati	on			Below 1.0g
		1	1	1	1000m
	Max. a	ltitude abov	ve sea level	l	3000m (Derate for altitude over 1000m above sea level)
	Electronic motor t	hermal pro	tection aga	inst overload	
	Overtemperature j	protection:	Temperatu	re monitoring	of heat-sink ensures that the converter will trip when the
	temperature reach fallen below 70±5	les 95±5℃ ℃	, and an o	vertemperatur	re can only reset when the temperature of heat-sink has
	The converter is p	rotected ag	ainst short-	circuiting on t	the output terminals U. V.W.
Protections	The converter is p	rotected ag	ainst earth	fault on output	t terminals U. V. W.
	The converter will	trip if the	intermediat	e circuit volta	ge gets too high or too low.
	If a motor phase is	s missing t	he converte	r will trin and	issue an alarm
	If there is a main t	Fault the co	nverter wil	l carry out a c	ontrolled ramp-down and issue an alarm
	If a main phase is	missing th	e converter	will trin and	issue an alarm



# Wiring Diagram

The wiring of the converter is divided into two parts: main circuit and control circuit. The following drawing is factory standard wiring diagram of HLP-NV. The terminals should be connected correctly as the wiring diagram. (See user manual for details).



Symbol	Description						
R (L), S, T (N)	Power Supply terminals (Connect to L and N for single phase)						
U, V, W	Output terminals						
+UDC, BR	Braking Resistor terminals (1.5kW and above	e)					
-UDC	DC bus Negative terminal						
Ð	Ground Terminal						
GND	Common Terminal for Digital signal						
+10V	+10V DC Supply						
VIN	Analog Input (0-10V)						
GND	Common terminal for analog inputs						
AIN	Programmable Analog Input (0-20mA)						
AO	Programmable Analog Output (0/4-20mA)						
RS+, RS-, COM	Communication terminals						
EV	24V DC Supply						
Symbol	Description	Factory setting					
RUN	Programmable Digital Input	Startup					
F/ <b>R</b>	Programmable Digital Input	Reverse					
RST	Programmable Digital Input	Reset					
JOG	Programmable Digital Input	Jog					
EMS	Programmable Digital/Pulse Input	No Function					
FA, FB, FC	Programmable Relay Outputs	Fault					

Note: A brake chopper is built in the converter from 1.5kW upwards.



Electrical Data								
Ordering number	Model	Mains supply	Power (kW)	Output Current (A)	Motor (kW)	Ordering number (Without LCP)		
30012100	HLPNV0D1821A	1×200-240V 50/60Hz	0.18	1.2	0.18	30012150		
30012102	HLPNV0D3721A	1×200-240V 50/60Hz	0.37	2.2	0.37	30012152		
30012103	HLPNV0D7521A	1×200-240V 50/60Hz	0.75	4.2	0.75	30012153		
30012104	HLPNV01D521A	1×200-240V 50/60Hz	1.5	6.8	1.5	30012154		
30012105	HLPNV02D221A	1×200-240V 50/60Hz	2.2	9.6	2.2	30012155		
30012301	HLPNV0D2523A	3×200-240V 50/60Hz	0.25	1.5	0.25	30012351		
30012302	HLPNV0D3723A	3×200-240∨ 50/60Hz	0.37	2.2	0.37	30012352		
30012303	HLPNV0D7523A	3×200-240V 50/60Hz	0.75	4.2	0.75	30012353		
30012304	HLPNV01D523A	3×200-240V 50/60Hz	1.5	6.8	1.5	30012354		
30012305	HLPNV02D223A	3×200-240V 50/60Hz	2.2	9.6	2.2	30012355		
30012307	HLPNV03D723A	3×200-240V 50/60Hz	3.7	15.2	3.7	30012357		
30014302	HLPNV0D3743A	3×380-480V 50/60Hz	0.37	1.2	0.37	30014352		
30014303	HLPNV0D7543A	3×380-480V 50/60Hz	0.75	2.2	0.75	30014353		
30014304	HLPNV01D543A	3×380-480V 50/60Hz	1.5	3.7	1.5	30014354		
30014305	HLPNV02D243A	3×380-480V 50/60Hz	2.2	5.3	2.2	30014355		
30014306	HLPNV03D043A	3×380-480V 50/60Hz	3.0	7.2	3.0	30014356		
30014308	HLPNV04D043A	3×380-480V 50/60Hz	4.0	9.0	4.0	30014358		
30014309	HLPNV05D543A	3×380-480V 50/60Hz	5.5	12	5.5	30014359		
30014310	HLPNV07D543A	3×380-480V 50/60Hz	7.5	15.5	7.5	30014360		
30014311	HLPNV001143A	3×380-480V 50/60Hz	11	23.0	11	30014361		
30014312	HLPNV001543A	3×380-480V 50/60Hz	15	31.0	15	30014362		
30014313	HLPNV18D543A	3×380-480V 50/60Hz	18.5	37.0	18.5	30014363		
30014314	HLPNV002243A	3×380-480V 50/60Hz	22	43.0	22	30014364		

Note: User can order the converter with LCP or Without LCP as required.

Mechanical dimensions							
Model	Α	В	С	D	Е	F/G	Mechanical dimensions (Unit: mm
HLPNV0D1821A							8
HLPNV0D2523A							
HLPNV0D3721A							
HLPNV0D3723A	50	70	151	1(0	150	<b>A</b> 45	
HLPNV0D3743A	50	70	151	160	150	Ψ4.5	
HLPNV0D7521A							
HLPNV0D7523A							
HLPNV0D7543A							P P
HLPNV01D521A							
HLPNV01D523A	61	75	178	196	170	<b>D</b> 4.5	HOLIP 2
HLPNV01D543A	01	/3	1/8	180	170	Ψ4.5	ABBERER (P
HLPNV02D243A							
HLPNV02D221A							
HLPNV02D223A							
HLPNV03D043A							
HLPNV03D723A	76	90	230	239	196	Φ4.5	
HLPNV04D043A							L.
HLPNV05D543A							
HLPNV07D543A							
HLPNV001143A	07	125	272	202	242	<u>7</u>	1
HLPNV001543A	9/	97 125	.5 2/3	292	243	Ψ/	1
HLPNV18D543A	127	165	216	225	252	<u>7</u>	
HLPNV002243A	157	105	510	333	232	$\Psi$	





Note: HLP-NV series converter has two kinds of LCP: with potentiometer and without potentiometer. The LCP without potentiometer has Up, Down function directly by navigation keys.

Note: The mechanical dimensions of LCP with and without potentiometer are the same.

#### Accessories

A dedicated mounting kit is available for mounting the local control panel in the cabinet. User can select length of the cable according to the following form. Also, user can select mounting kit or just only the cable.which is used for remote communication between LCP and the converter.

Ordering number (kit)	The length of cable	Ordering number (only cable)	Length
300B0123	1 m	300B4070	1 m
300B0124	2m	300B4071	2m
300B0129	3m	300B4072	3m
300B0125	5m	300B4073	5m
300B0126	7m	300B4074	7m
300B0127	10m	300B4075	10m
300B0128	15m	300B4076	15m

Note: The mounting kit contains a, a metal plate, three screws for fixing metal plate, and four screws.



# HLP-P Series Fan/Pump Dedicated Frequency Converter

HLP-P series converter is expressly developed for machines such as fan, pump and air compressor, based on the features of flow and pressure control principle. It can be used in closed-loop system dispense with PLC for its PID controller in most situations. It has functions of automatic voltage regulation, dormancy, automatic energy-saving, automatic stop when overpressure and restart when pressure gets normal, etc.

Specifically, it has an analog input and output expansion board from 15kW upwards, which is designed for three feedback signals from the pressure transmitter.



Power range: 0.75-5.5 kW (1 & 3×220V), 0.75-450 kW (3×380V)

#### **Functions and Features**

- **u** It has a wider tolerance for the changes of supply voltage;
- 4 It can be used one for two, that is one motor is supplied from converter and two motors are supplied from the main line;
- Lt has PID controller which can replace PLC in most closed-loop systems;
- It can receive three kinds of feedback signals: resistance 0-400Ω, current 4-20mA and voltage 0-10V;
- **4** It has functions of Simple PLC, wobble, quasi winding and unwinding, multi-Speed control, etc;
- It provide full protections to ensure that pump has a much longer service life;
- **4** The carrier frequency is user definable and can be as high as 20kHz;
- 4 It has automatic energy-saving, automatic voltage regulation and dormancy functions
- Lt can automatically stop when the pressure is too high and restart when the pressure gets normal;
- It has Holip Communication Protocol and Modbus Protocol, and it is easier for user to build up centralized control system.



Technica	Data					
Modulation			SPWM			
AC line supply	/		220V: 180~250V 380V: 380~460V			
5 Digital Displ	av & Status Indicator I	amn	Displaying frequency, current, revolution, voltage, counter,			
		amp	temperature, forward or reverse, fault, etc.			
Communicatio	n Mode		RS 485 serial communication			
Communicatio	n Protocol		Holip Communication Protocol, Modbus Protocol			
			Ambient Temperature: -10~40°C			
Surroundings			Humidity: 0- 95% Relative Humidity (Non-dewfall)			
			Vibration: Below 0.5g			
	Output Frequency	Range	0.10~400.00Hz			
	ouput i requency	Accuracy	Digital: 0.01% (-10~40°C);Analog: 0.1% (25±10°C)			
	Reference Resolution		Digital: 0.01Hz; Analog: 1‰ of Maximum Output Frequency			
Frequency	Output Frequency Res	solution	0.01Hz			
Control	LCP Frequency Settin	g	By the buttons of $\leftarrow \land \lor$			
	Analog Frequency Set	ting	External 0-5V, 0-10V, 4-20mA, 0-20mA			
	Other functions		Frequency low limit, Start Frequency, Stop Frequency, Frequency			
	Other functions		bypass function (Three settable frequency bypasses)			
	Ramp time		0.1-6500sec (There are four selectable ramp up / down time)			
	V/F Curve		It is possible to make a V/F curve on the basis of three definable			
-			voltage and frequencie.			
	Torque Control		Maximum torque compensation can reach 10%			
			Startup torque can reach 150% while 1Hz			
	Programmable Digital Inputs		Six programmable digital inputs for 8-speed control mode, Simple			
General			PLC, ramp time switching, up and down function, counter, emergency			
Control			stop, etc			
	Programmable Digital Outputs		Five programmable digital outputs for indicating the status of running,			
			below start frequency, counter, fault, the status of simple PLC and			
			alarm.			
	Other functions		Automatic Voltage Regulation, Ramp to stop or Coast, DC brake,			
			Automatic reset and restart, Flying start, Simple PLC, Wobble function,			
			Quasi winding and unwinding function, Automatic energy-saving,			
			User-definable Carrier frequency (0.7-20kHz), etc.			
	Overload Protection		Electronic relay Protection for motor			
			Frequency converter (Constant torque: 150%/1 min, Fan:120%/1 min)			
	Fuse Protection		If fuse has blown, motor will stop			
	Over voltage Protectio	on	220V Class: DC Voltage >400V; 380V Class: DC Voltage >800V			
Protections	Under voltage Protect	ion	220V Class: DC Voltage >200V; 380V Class: DC Voltage >400V			
	Flying start after trans	ient supply loss	Flying start after transient supply loss			
	Anti-stall Function		Prevent stalling when running, accelerating or decelerating			
	Output short circuit Pr	otection	Electric circuit protection			
	Other functions		Heat sink over-temperature protection, Restriction against reverse,			
			Fault Reset, Parameter lock, One for two, etc.			



#### Wiring Diagram and Terminal Description

The wiring of the converter is divided into two parts: main circuit and control circuit. The following drawing is the factory standard wiring diagram of HLPP001543B~HLPP003743B models. The terminals should be connected correctly as the wiring diagram. (See user manual for details).



Symbol	Description				
R, S, T	Power supply terminals (For single-phase, connect wires to any two terminals)				
U, V, W	Output terminals				
P, N	Braking chopper terminals				
Е	Ground terminal				
DCM	Common terminal for digital inputs				
+10V	10V DC supply				
VI	Analog Voltage Input				
AI	Analog Current Input	Analog Current Input			
AM	Programmable Pulse/Current Analog Output				
ACM	Common terminal for analog inputs				
AO, COM	Analog Output (0-20mA)				
VCC, RI, GND	Analog Input				
RS+, RS-	RS 485 Serial Communication terminals				
Symbol	Description	Factory Setting			
FOR	Programmable Digital Input	Forward			
REV	Programmable Digital Input	Reverse			
RST	Programmable Digital Input	Reset			
SPH	Programmable Digital Input	High speed			
SPM	Programmable Digital Input Medium speed				
SPL	Programmable Digital Input Low speed				
DRV	Programmable Digital Output (Optical coupling) Running				
UPF	Programmable Digital Output (Optical coupling)	Reach Reference			
FA, FB, FC	Programmable Digital Outputs (Normal close /Normal open)	Fault			
KA, KB	Programmable Digital output (Normal open)	No function			



Electrical Data							
Ordering	Madal	Moine supply	Power	Output Current	Motor	I CP Model	
number	WIGHEI		( <b>kW</b> )	(A)	(kW)		
306100	HLPP0D7523C	1 & 3×220V 50Hz	0.75	5.0	0.75		
306101	HLPP01D523C	1 & 3×220V 50Hz	1.5	7.0	1.5	OP-AC01	
306102	HLPP02D223C	1 & 3×220V 50Hz	2.2	11	2.2		
306103	HLPP03D723B	1 & 3×220V 50Hz	3.7	17	3.7	OP-AB01	
306104	HLPP05D523B	1 & 3×220V 50Hz	5.5	25	5.5	OP-AB02	
306110	HLPP0D7543C	3×380V 50Hz	0.75	2.7	0.75		
306111	HLPP01D543C	3×380V 50Hz	1.5	4.0	1.5		
306112	HLPP02D243C	3×380V 50Hz	2.2	5.0	2.2	OP-AC01	
306113	HLPP03D743C	3×380V 50Hz	3.7	8.5	3.7		
333327	HLPP05D543B	3×380V 50Hz	5.5	12.5	5.5		
333328	HLPP07D543B	3×380V 50Hz	7.5	17.5	7.5		
333329	HLPP001143B	3×380V 50Hz	11	24	11		
333320	HLPP001543B	3×380V 50Hz	15	33	15		
333321	HLPP18D543B	3×380V 50Hz	18.5	40	18.5		
333322	HLPP002243B	3×380V 50Hz	22	47	22		
333323	HLPP003043B	3×380V 50Hz	30	65	30		
333324	HLPP003743B	3×380V 50Hz	37	75	37		
333325	HLPP004543B	3×380V 50Hz	45	91	45		
333326	HLPP005543B	3×380V 50Hz	55	110	55		
333330	HLPP007543B	3×380V 50Hz	75	152	75		
333334	HLPP009043B	3×380V 50Hz	90	176	90		
333331	HLPP011043B	3×380V 50Hz	110	210	110		
333333	HLPP013243B	3×380V 50Hz	132	253	132	OP-AB02	
333332	HLPP016043B	3×380V 50Hz	160	304	160		
333339	HLPP018543B	3×380V 50Hz	185	340	185		
333335	HLPP020043B	3×380V 50Hz	200	380	200		
333374	HLPP022043B	3×380V 50Hz	220	426	220		
333340	HLPP025043B	3×380V 50Hz	250	480	250		
333342	HLPP028043B	3×380V 50Hz	280	540	280		
333349	HLPP030043B	3×380V 50Hz	300	580	300		
333336	HLPP031543B	3×380V 50Hz	315	605	315		
333350	HLPP034543B	3×380V 50Hz	345	660	345		
333337	HLPP037543B	3×380V 50Hz	375	715	375		
333344	HLPP040043B	3×380V 50Hz	400	765	400		
333338	HLPP041543B	3×380V 50Hz	415	795	415		
333348	HLPP045043B	3×380V 50Hz	450	880	450		

Note: When ordering, please confirm ordering number, model and specifications carefully.

Note: The converters are built in an analog input and output expansion board from 15kW upwards.







Madal	Mechanical dimensions (Unit: mm)							
Model	Α	В	С	D	Е	F	G	Н
HLPP0D7523C								
HLPP01D523C								
HLPP02D223C								
HLPP0D7543C	116	125	161	170	141	$\Phi 5$		
HLPP01D543C								
HLPP02D243C								
HLPP03D743C								
HLPP03D723B	_							
HLPP05D523B	128	140	238	250	157	$\Phi 5$		
HLPP05D543B								
HLPP07D543B	184	200	306	318	180	Ф6	6	
HLPP001143B	104	200	500	510	100	40	0	
HLPP001543B	182	257	437	457	242	Ф8	ø	
HLPP18D543B	102	231	157	-137	212	40	0	
HLPP002243B	206	281	490	510	242	$\Phi 8$	8	
HLPP003043B	239	315	490	510	242	<u>Ф</u> 8	8	
HLPP003743B	237	515	150	510	2.2		0	
HLPP004543B	250	345	650	670	325	<b>Φ</b> 10	10	
HLPP005543B								
HLPP007543B	300	450	768	800	350	Ф16	16	
HLPP009043B								
HLPP011043B	300	450	828	860	350	Ф16	16	
HLPP013243B	500	650	868	900	400	Φ16	16	
HLPP016043B								
HLPP018543B	560	650	868	900	400	Φ16	16	
HLPP016043BG	600	600	1649	90	420	90	400	Φ16
HLPP018543BG								
HLPP020043B	-							Φ16
HLPP022043B	600	600	1805	90	420	90	400	
HLPP025043B	-			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
HLPP028043B								
HLPP030043B	-							
HLPP031543B	685	600	2225	90	505	90	400	Φ16
HLPP034543B								
HLPP037543B	-							
HLPP040043B	855	600	2279	90	675	90	400	Ф16
HLPP041543B								
HLPP045043B								

Note: Please refer to HLP-A part for the dimensions and remote communication cable of LCP.



# **HLP-F Series Textile Dedicated Frequency Converter**

HLP-F series frequency converter is dedicated to textile industry with two special functions: textile dedicated sixteen-speed control and sixteen-speed control with meter counter and shift function.

It is qualified for high-temperature, full of cotton applications. To the surrounding of the textile industry, the converter has two types of cooling for user to choose, one is with fan (B version) and the other heat-sink exposed (C version).

HLP-F series converter also has automatic voltage regulation and energy-saving functions.



#### Power range: 11-22 kW (3×380V)

#### **Functions and Features**

- It has high reliability with the motor control IC+IGBT at the core;
- It has a wider tolerance for the changes of supply voltage by 15%;
- It has special function for textile application, such as textile dedicated sixteen-speed, meter counter, and yarn breaking alarm, etc;
- It is fit for high temperature and full of cotton applications for its well designed in cooling;
- Let has PID controller which is used in process control system;
- It has a function that the speed decreases Automatically in a user-defined time, this function can be used in some applications of winding;
- It has a wide output frequency range 0.1-400.00 Hz and good frequency accuracy;
- It has Holip Communication Protocol and Modbus Protocol, and it is easier for user to build up centralized control system.



Madulation         SPWM           AC line supply         380V: 380+15%; 220V: 220+15%           5 Digital Display & Status Indicator Lamp         Displaying frequency, current, revolution, voltage, counter, temperature, forward or reverse, fault, etc           Communication Mode         R8 485 serial communication           Communication Protocol         Modbus Protocol           Temperature         -10-40°C           Hunidity         0-95% Relative Hunidity (Non-dewfall)           Vibration         Below 0.5g           Vibration         Output Frequency Range           Quiput Frequency Range         0.10-400.00Hz           Accuracy         Digital: 0.01% (10-40°C)           Analog: 10% of Maximum Output Frequency         Quiput Frequency Resolution           Quiput Frequency Resolution         0.01Hz           LCP Frequency Setting         By the buttons of ~ ^ / V           Analog: 10% of Maximum Output Frequency, Frequency bypass         function frequency low limit, Start Frequency, Stop Frequency bypass           General Control         V/F Curve         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           General Control         Programmable Digital Input         Six programmable digital inputs for & Speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           V/F Curve	Technical l	Data					
AC line supply       380V: 380±15%; 220V: 220±15%         5 Digital Display & Status Indicator Lamp       Displaying frequency, current, revolution, voltage, counter, temperature, forward or reverse. fault, etc         Communication Mode       RS 485 serial communication         Communication Protocol       Holip Communication Protocol         Temperature       -10-40°C         Humidity       0-95% Relative Humidity (Non-dewfall)         Vibration       Below 0.5g         Output Frequency Range       0.10-400C)         Accuracy       Analog: 0.1% (-10-40°C)         Accuracy       Digital: 0.01% (-10-40°C)         Accuracy       Analog: 0.1% (-20-40°C)         Accuracy       Analog: 0.1% (25=10°C)         Reference Resolution       Digital: 0.01% (-40-40°C)         Accuracy       Analog: 1% of Maximum Output Frequency         Output Frequency Setting       By the buttons of < A \/	Modulation		SPWM				
5 Digital Display & Status Indicator Lamp     Displaying frequency, current, revolution, voltage, counter, temperature, forward or reverse, fault, etc       Communication Mode     RS 485 serial communication       Communication Protocol     Holip Communication Protocol       Modbus Protocol     Modbus Protocol       Temperature     -10-40°C       Humidity     0-95% Relative Humidity (Non-dewfall)       Vibration     Below 0.5g       Vibration     Output Frequency Range       Output Frequency Range     0.10-400.00Hz       Accuracy     Digital: 0.01% (-10-40°C)       Accuracy     Digital: 0.01Hz       Accuracy     Digital: 0.01Hz       Accuracy     Analog: 1% of Maximum Output Frequency       Output Frequency Resolution     0.01Hz       LCP Frequency Setting     External 0-5V, 0-10V, 4-20mA, 0-20mA       Prequency Setting     External 0-5V, 0-10V, 4-20mA, 0-20mA       Other functions     Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses)       General     Other functions     Startup torque can reach 150% while Hz       V/F Curve     It is possible to make a V/F curve on the basis of three definable voltage and frequencie.       Torque Characteristic     Maximum torque compensation can reach 10%       Startup torque can reach 150% while Hz     Six programmable digital inputs for 8-speed control, Simple PLC,	AC line supply		380V: 380±15%; 220V: 220±15%				
5 Digital Display & Status Indicator Lamp       forward or reverse, fault, etc         Communication Mode       RS 488 serial communication         Communication Protocol       Holip Communication Protocol         Temperature       -10-40°C         Humidity       0-95% Relative Humidity (Non-dewfall)         Vibration       Below 0.5g         Output Frequency Range       0.10-400°C         Accuracy       Digital: 0.01% (-10-40°C)         Analog: 0.1% (25-10°C)       Accuracy         Accuracy       Digital: 0.01Hz         Analog: 0.1% (25-10°C)       Output Frequency Resolution         Output Frequency Resolution       0.01Hz         Analog: 1% (25-10°C)       Analog: 1% (25-10°C)         Analog: 1% (25-10°C)       Output Frequency Resolution         Output Frequency Resolution       0.01Hz         Analog Frequency Setting       By the buttons of ← A ∨         Analog Frequency Setting       External 0-5V, 0-10V, 4-20mA, 0-20mA         Other functions       Frequency low limit, Start Frequency, Stop Frequency bypass function (Three settable frequency bypasses)         Other functions       Startup torque can reach 15% while 1Hz         Programmable Digital Input       Six programmable digital outputs for indicating running, counter, fault, Simple PLC, ramp time switching, up and down function, counter, energery stop, ete			Displaying frequency, current, revolution, voltage, counter, temperature,				
Communication Mode         RS 485 serial communication           Communication Protocol         Holip Communication Protocol Modbus Protocol           Temperature         -10-40°C           Humidity         0-95% Relative Humidity (Non-dewfall)           Vibration         Below 0.5g           Output Frequency Range         0.10-400°C)           Accuracy         Digital: 0.01% (-10-40°C)           Analog: 0.1% (25±10°C)         Reference Resolution           Output Frequency Resolution         0.01Hz           LCP Frequency Setting         By the buttons of ← A ∨           Analog: Prequency Setting         External 0-5V, 0-10V, 4-20mA, 0-20mA           Other functions         Frequency low limit, Start Frequency. Stop Frequency bypass function (Three settable frequency bypasses)           Other functions         Frequenceic.           Torque Characteristic         Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz           Frequency         Six programmable digital outputs for indicating running, counter, fault, Simp PLC status and alarms           Other functions         Five programmable digital inputs for Respeed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           Frequency         Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms           Other functions	5 Digital Displ	ay & Status Indicator Lamp	forward or reverse, fault, etc				
Communication Protocol         Holip Communication Protocol Modbus Protocol           Temperature         -10-40°C           Humidity         0-95% Relative Humidity (Non-dewfall)           Vibration         Below 0.5g           Output Frequency Range         0.10-400.00Hz           Accuracy         Digital: 0.01% (-10-40°C)           Analog: 0.1% (25=10°C)         Analog: 0.1% (25=10°C)           Reference Resolution         0.01Hz           LCP Frequency Setting         By the buttons of ← A ∨           Analog: 1% of Maximum Output Frequency.         Frequency Setting           By the buttons of ← A ∨         Analog: 1% of Maximum Output Frequency.           Other functions         Frequency low limit, Start Frequency. Stop Frequency. Frequency bypass function (Three settable frequency bypasses)           General         Other functions           V/F Curve         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           Torque Characteristic         Maximum torque compensation can reach 10% Startup torque can reach 150% while HIz           Six programmable Digital Input         Six programmable digital outputs for indicating running, counter, fault, Simple PLC, status and alarms           Other functions         Five programmable digital outputs for indicating running, counter, fault, Simple PLC, status and alarms           Other functions         Fi	Communicatio	n Mode	RS 485 serial communication				
Communication Protocol         Modbus Protocol           Temperature         -10-40°C           Humidity         0-95% Relative Humidity (Non-dewfall)           Vibration         Below 0.5g           Output Frequency Range         0.10-4000.00Hz           Accuracy         Digital: 0.01% (-10-40°C)           Accuracy         Digital: 0.01% (-10-40°C)           Accuracy         Digital: 0.01% (-10-40°C)           Accuracy         Digital: 0.01% (-10-40°C)           Analog: 0.1% (055:10°C)         Reference Resolution           Output Frequency Resolution         0.011Z           LCP Frequency Setting         By the buttons of ~- ^ \           Analog Frequency Setting         External 0-5V, 0-10V, 4-20mA, 0-20mA           Frequency Other functions         Frequency low limit, Start Frequency, Stop Frequency bypasses           Other functions         Frequencie.           V/F Curve         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           Torque Characteristic         Startup torque can reach 15% while Hz           Programmable Digital Input         Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           Five programmable digital output         Five programmable digital outputs for indicating running, counter, fault, Simple PL			Holip Communication Protocol				
Temperature-10-40°CHumidity0-95% Relative Humidity (Non-dewfall)VibrationBelow 0.5gOutput Frequency Range0.10-400.00HzAccuracyDigital: 0.01% (-10-40°C) Analog: 0.1% (25±10°C)Reference ResolutionDigital: 0.01Hz Analog: 1% of Maximum Output FrequencyOutput Frequency Resolution0.01Hz Analog: 1% of Maximum Output Frequency.Output Frequency SettingBy the buttons of $\leftarrow \land \lor$ Analog Frequency SettingReference Resolution0.01Hz Analog Frequency. SettingOther functionsFrequency Compare the buttom output Frequency. Stop Frequency. Frequency bypass function (Three settable frequency bypasses)Ramp time0.1-6500sec (There are four selectable ramp up / down time)V/F CurveIt is possible to make a V/F curve on the basis of three definable voltage and frequencie.Torque CharacteristicMaximum torque compensation can reach 10% Startup torque can reach 150% while HIzProgrammable Digital OutputSix programmable digital inputs for 8-speed control, Simple PLC, ramp time witching, up and down function, counter, emergency stop, etcProgrammable Digital OutputFive programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarmsGeneral ControlOverload ProtectionElectronic relay Protection (AVR), Ramp to stop or Coast, DC brake, Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble funct	Communicatio	n Protocol	Modbus Protocol				
Humidity         0-95% Relative Humidity (Non-dewfall)           Vibration         Below 0.5g           Vibration         0.10-400.00Hz           Accuracy         Digital: 0.01% (-10-40°C) Analog: 0.1% (25±10°C)           Reference Resolution         Digital: 0.01% (-10-40°C) Analog: 1% of Maximum Output Frequency           Output Frequency Resolution         0.01Hz           LCP Frequency Setting         By the buttons of A \           Analog Frequency Setting         By the buttons of A \           Analog Frequency Setting         By the buttons of A \           Analog Frequency Setting         External 0-5V, 0-10V, 4-20mA, 0-20mA           Analog Frequency Setting         External 0-5V, 0-10V, 4-20mA, 0-20mA           Other functions         Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses)           Ramp time         0.1-6500sec (There are four selectable ramp up / down time)           V/F Curve         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           Forque Characteristic         Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz           Programmable Digital Input         Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           Fore programmable Digital Output         Five program	Temperature		-10~40°C				
Vibration         Below 0.5g           Output Frequency Range         0.10-400.00Hz           Accuracy         Digital: 0.01% (-10-40°C) Analog: 0.1% (25±10°C)           Reference Resolution         Digital: 0.01Hz Analog: 1% of Maximum Output Frequency           Output Frequency Resolution         0.01Hz           LCP Frequency Setting         By the buttons of A V           Analog Frequency Setting         External 0-5V, 0-10V, 4-20mA, 0-20mA           Other functions         Frequency low limit, Start Frequency. Stop Frequency, Frequency bypass function (Three settable frequency bypasses)           Remp time         0.1-6500sec (There are four selectable ramp up / down time)           It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           Torque Characteristic         Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz           Six programmable Digital Input         Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           Five programmable Digital Output         Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms           Other functions         Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20MHz), etc.	Humidity		0-95% Relative Humidity (Non-dewfall)				
Output Frequency Range         0.10-400.00Hz           Accuracy         Digital: 0.01% (-10-40°C) Analog: 0.1% (25±10°C)           Reference Resolution         Digital: 0.01Hz Analog: 0.% of Maximum Output Frequency           Output Frequency Resolution         0.01Hz           LCP Frequency Setting         By the buttons of ← A ∨           Analog Frequency Setting         By the buttons of ← A ∨           Other functions         Frequency low limit, Start Frequency. Stop Frequency, Frequency bypass function (Three settable frequency bypasses)           Ramp time         0.1-6500sec (There are four selectable ramp up / down time)           V/F Curve         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           Torque Characteristic         Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz           Programmable Digital Input         Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           Five programmable Digital Output         Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms           Other functions         Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.           Electronic relay Protection for motor Frequency conver	Vibration		Below 0.5g				
Accuracy         Digital: 0.01% (-10-40°C) Analog: 0.1% (25±10°C)           Reference Resolution         Digital: 0.01Hz Analog: 1% of Maximum Output Frequency           Output Frequency Resolution         0.01Hz           LCP Frequency Resolution         0.01Hz           Analog: 1% of Maximum Output Frequency         Analog: 1% of Maximum Output Frequency           Analog Frequency Resolution         0.01Hz           LCP Frequency Setting         External 0-5V, 0-10V, 4-20mA, 0-20mA           Other functions         Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses)           Ramp time         0.1-6500sec (There are four selectable ramp up / down time)           V/F Curve         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           Torque Characteristic         Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz           Programmable Digital Input         Six programmable digital outputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           Five programmable Digital Output         Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms           General Control         Other functions         Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic Voltage Regulation (AVR), Ramp to stop		Output Frequency Range	0.10~400.00Hz				
Frequency Control         Accuracy         Analog: 0.1% (25±10°C)           Bigital: 0.01Hz Analog: 1% of Maximum Output Frequency         Digital: 0.01Hz Analog: 1% of Maximum Output Frequency           Output Frequency Resolution         0.01Hz           LCP Frequency Setting         By the buttons of ← A ∨           Analog Frequency Setting         External 0-5V, 0-10V, 4-20mA, 0-20mA           Other functions         Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses)           Other functions         0.1-6500sec (There are four selectable ramp up / down time)           It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           V/F Curve         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           Torque Characteristic         Maximum torque compensation can reach 10% Startup torque can reach 150% while IHz           Programmable Digital Input         Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           Five programmable Digital Output         Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms           General Control         Other functions         Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.		A	Digital: 0.01% (-10~40°C)				
Frequency Control         Reference Resolution         Digital: 0.01Hz Analog: 1% of Maximum Output Frequency           Output Frequency Resolution         0.01Hz           LCP Frequency Setting         By the buttons of $\leftarrow \land \lor$ Analog Frequency Setting         External 0-5V, 0-10V, 4-20mA, 0-20mA           Other functions         Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses)           Other functions         0.1-6500sec (There are four selectable ramp up / down time)           It is possible to make a VF curve on the basis of three definable voltage and frequencie.           Torque Characteristic         Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz           Programmable Digital Input         Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           Five programmable Digital Output         Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms           General Control         Other functions         Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.           Electronic relay Protection for motor Frequency Converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Elec		Accuracy	Analog: 0.1% (25±10°C)				
Frequency Control       Reference Resolution       Analog: 1% of Maximum Output Frequency         Output Frequency Resolution       0.01Hz         LCP Frequency Setting       By the buttons of ~_ \ \         Analog Frequency Setting       External 0-5V, 0-10V, 4-20mA, 0-20mA         Other functions       Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses)         Ramp time       0.1-6500sec (There are four selectable ramp up / down time)         V/F Curve       It is possible to make a V/F curve on the basis of three definable voltage and frequencie.         Torque Characteristic       Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz         Programmable Digital Input       Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc         General Control       Programmable Digital Output       Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms         General Control       Other functions       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)       Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)		Deference Decelution	Digital: 0.01Hz				
Control       Output Frequency Resolution       0.01Hz         LCP Frequency Setting       By the buttons of ← ∧ ∨         Analog Frequency Setting       External 0-5V, 0-10V, 4-20mA, 0-20mA         Other functions       Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses)         Other functions       Ramp time       0.1-6500sec (There are four selectable ramp up / down time)         V/F Curve       It is possible to make a V/F curve on the basis of three definable voltage and frequencie.         Torque Characteristic       Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz         Programmable Digital Input       Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc         General Control       Programmable Digital Output       Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms         General Control       Other functions       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)       Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.	Frequency		Analog: 1% of Maximum Output Frequency				
LCP Frequency Setting       By the buttons of ← ∧ ∨         Analog Frequency Setting       External 0-5V, 0-10V, 4-20mA, 0-20mA         Other functions       Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses)         Ramp time       0.1-6500sec (There are four selectable ramp up / down time)         V/F Curve       It is possible to make a V/F curve on the basis of three definable voltage and frequencie.         Torque Characteristic       Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz         Programmable Digital Input       Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc         General       Programmable Digital Output       Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms         General       Other functions       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Electronic relay Protection for motor Frequency Protection for motor Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.	Control	Output Frequency Resolution	0.01Hz				
Analog Frequency Setting       External 0-5V, 0-10V, 4-20mA, 0-20mA         Other functions       Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses)         Ramp time       0.1-6500sec (There are four selectable ramp up / down time)         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.         Torque Characteristic       Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz         Programmable Digital Input       Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc         Five programmable Digital Output       Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms         General Control       Other functions       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Electronic relay Protection for motor Frequency Onvoerter (Constant torque: 150%/1 min , Fan: 120%/1 min)       Frequency Onvoerter (Constant torque: 150%/1 min , Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.       200V (Elecar DC		LCP Frequency Setting	By the buttons of $\leftarrow \land \lor$				
Other functions         Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses)           Ramp time         0.1-6500sec (There are four selectable ramp up / down time)           V/F Curve         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           Torque Characteristic         Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz           Programmable Digital Input         Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           Five programmable Digital Output         Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms           General Control         Other functions         Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.           Image: Protection         Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)           Fuse Protection         If fuse has blown, motor will stop.		Analog Frequency Setting	External 0-5V, 0-10V, 4-20mA, 0-20mA				
Image: Control functions         function (Three settable frequency bypasses)           General         Ramp time         0.1-6500sec (There are four selectable ramp up / down time)           V/F Curve         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           Torque Characteristic         Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz           Programmable Digital Input         Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           Five programmable Digital Output         Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms           General Control         Other functions         Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.           Electronic relay Protection for motor         Frequency converter (Constant torque: 150%/1 min , Fan: 120%/1 min)           Fuse Protection         If fuse has blown, motor will stop.         200%/1 min )		Other functions	Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass				
Ramp time       0.1-6500sec (There are four selectable ramp up / down time)         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.         Torque Characteristic       Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz         Programmable Digital Input       Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc         Programmable Digital Output       Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms         Control       Other functions       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Electronic relay Protection for motor       Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.		Other functions	function (Three settable frequency bypasses)				
General Control         V/F Curve         It is possible to make a V/F curve on the basis of three definable voltage and frequencie.           Torque Characteristic         Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz           Programmable Digital Input         Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc           Five programmable Digital Output         Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms           General Control         Other functions         Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.           Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min , Fan: 120%/1 min)           Fuse Protection         If fuse has blown, motor will stop.		Ramp time	0.1-6500sec (There are four selectable ramp up / down time)				
General Control       V/I Curve       and frequencie.         General Control       Torque Characteristic       Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz         Programmable Digital Input       Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc         Programmable Digital Output       Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms         General Control       Other functions       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.		V/E Curve	It is possible to make a V/F curve on the basis of three definable voltage				
Control       Torque Characteristic       Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz         Programmable Digital Input       Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc         Programmable Digital Output       Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms         General Control       Other functions       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min , Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.         220W Charge DC Voltage a > 400W	General		and frequencie.				
Startup torque can reach 150% while 1Hz         Programmable Digital Input       Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc         Programmable Digital Output       Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms         General Control       Other functions       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Overload Protection       Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.       400W	Control	Torque Characteristic	Maximum torque compensation can reach 10%				
Programmable Digital Input       Six programmable digital inputs for 8-speed control, Simple PLC, ramp time switching, up and down function, counter, emergency stop, etc         Programmable Digital Output       Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms         General Control       Other functions       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Overload Protection       Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.       400V	Condor		Startup torque can reach 150% while 1Hz				
General       Programmable Digital Output       Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms         General       Other functions       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Overload Protection       Electronic relay Protection for motor         Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)       If fuse has blown, motor will stop.         Q20W Clear       220W Clear       400W		Programmable Digital Input	Six programmable digital inputs for 8-speed control, Simple PLC, ramp				
General       Programmable Digital Output       Five programmable digital outputs for indicating running, counter, fault, Simple PLC status and alarms         Control       Attomatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Overload Protection       Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.         220W Clear DC Valtare > 400W			time switching, up and down function, counter, emergency stop, etc				
General       Simple PLC status and alarms         General       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Overload Protection       Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.         220W Clear DC Values       400W		Programmable Digital Output	Five programmable digital outputs for indicating running, counter, fault,				
General Control       Other functions       Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Overload Protection       Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.         220W Classe DC Valtage > 400W			Simple PLC status and alarms				
Control       Other functions       Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Overload Protection       Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.         220V Clears DC Values       400V	General		Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake,				
quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (0.7-20kHz), etc.         Overload Protection       Electronic relay Protection for motor Frequency converter (Constant torque: 150%/1 min , Fan: 120%/1 min)         Fuse Protection       If fuse has blown, motor will stop.         220V Clear DC Values       400V	Control	Other functions	Automatic reset and restart, Flying start, Simple PLC, Wobble function,				
Overload Protection     Electronic relay Protection for motor       Fuse Protection     If fuse has blown, motor will stop.			quasi winding and unwinding function, Automatic energy-saving,				
Overload Protection     Electronic relay Protection for motor       Frequency converter (Constant torque: 150%/1 min , Fan: 120%/1 min)       Fuse Protection       If fuse has blown, motor will stop.			User-definable Carrier frequency (0.7-20kHz), etc.				
Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)         Fuse Protection         If fuse has blown, motor will stop.         220W Closer DC Valtage > 400V		Overload Protection	Electronic relay Protection for motor				
Fuse Protection     If fuse has blown, motor will stop.       220V Closer DC Valtage > 400V			Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)				
		Fuse Protection	If fuse has blown, motor will stop.				
Over voltage Protection $220V$ Class: DC Voltage > 400V $280V$ Class: DC Voltage > 800V		Over voltage Protection	220V Class: DC voltage $> 400V$				
220V Class: DC Voltage > 800V			220V Class: DC Voltage $> 800V$				
ProtectionsUnder voltage Protection $220V$ Class: DC Voltage < $200V$ 280V Class: DC Voltage < $400V$	Protections	Under voltage Protection	220V Class: DC voltage $< 200V$				
$\frac{1}{1000} \text{ V class. DC voltage } 4000$		Elving start after transient supply loss	Flying start after transient supply loss				
Anti-stall Europian Provent stalling when supply loss		Anti stall Function	Provent stalling when running, accelerating or decelerating				
Output short aircuit Protoction Electric size/it protoction		Output short aircuit Protection	Electric circuit protection				
Upt short circuit Frotection Electric circuit protection Heat sink over topporture protection. Destriction against success Eault		Supul short circuit Frotection	Heat sink over temperature protection. Destriction against reverse. Fault				
Other functions Reset Parameter lock. One for two etc.		Other functions	Reset Parameter lock One for two etc				



#### Wiring Diagram and Terminal Description

The wiring of the converter is divided into two parts: main circuit and control circuit. The following drawing is the factory standard wiring diagram of HLPF001143B~HLPF002243B. The terminals should be connected correctly as the wiring diagram. (See user manual for details).



Symbol	Description			
R, S, T	Power supply terminals (For single-phase, connect wires to any two terminals)			
U, V, W	Output terminals			
P (+), N (-)	Braking chopper terminals			
Е	Ground terminal			
DCM	Common terminal for digital inputs			
+10V	10V DC supply			
VI	Analog Voltage Input			
AI	Analog Current Input			
AM	Programmable Pulse/Current Analog Output			
ACM	Common terminal for analog inputs			
RS+, RS-	RS 485 Serial Communication Terminals			
Symbol	Description	Factory Setting		
FOR	Programmable Digital Input	Forward		
REV	Programmable Digital Input	Reverse		
RST	Programmable Digital Input	Reset		
SPH	Programmable Digital Input	High speed		
SPM	Programmable Digital Input	Medium speed		
SPL	Programmable Digital Input	Low speed		
DRV	Programmable Digital Output (Optical coupling)	Running		
UPF	Programmable Digital Output (Optical coupling)	Reach Reference		
FA, FB, FC	Programmable Digital Outputs (Normal close /Normal open)	Fault		
KA KB	Programmable Digital output (Normal open)	No function		



Electrical Data							
Ordering number	Model	Mains supply	Power (kW)	Output Current (A)	Motor (kW)	LCP Model	
304000	HLPF001143B		11	24	11		
304001	HLPF001543B	3×380V 50Hz	15	33	15		
304002	HLPF18D543B		18.5	40	18.5		
304003	HLPF002243B		22	47	22		
304101	HLPF001143C		11	24	11	OF-AB02	
304100	HLPF001543C	3×380V 50Hz	15	33	15		
304102	HLPF18D543C		18.5	40	18.5		
304103	HLPF002243C		22	47	22		

Mechanical dimensions				
Model	Mechanical dimensions (Unit: mm)			
HLPF001143B	Same with HLPA001143B Same with HLPA18D543B			
HLPF001543B				
HLPF18D543B				
HLPF002243B				
HLPF001143C	Same with HLPA001143B except "E" is longer by 6mm			
HLPF001543C				
HLPF18D543C				
HLPF002243C	Same with nLrA18D343B except E is longer by billin			

Note: B version of HLP-F has two fans internally, and C version of HLP-F has no fan internally.

Note: When ordering, please confirm ordering number, model and specifications carefully.

Note: Please refer to HLP-A part for the dimensions of HLP-F converter and its LCP, remote communication cable.



# **HLP-M Series Machine Tool Dedicated Frequency Converter**

HLP-M series converter is dedicated to machine tools applications which need high startup torque. Its software makes the converter having much better performance while low frequency. To the surrounding of industry field, it has special treatment for protection against dust and damp.

HLP-M series converter has self-learning function which can automatic calculate motor data while motor is running at a certain frequency and make the converter match to motor well.



#### Power range: 0.4-3.7kW (1 & 3×220V), 0.75-7.5 kW (3×380V)

#### **Functions and Features**

- **4** It has high reliability with the motor control IC+IGBT at the core;
- **4** It has a wider tolerance for the changes of supply voltage by 15%;
- 4 It is suited to dusty and damp applications for its design of protection against dust and damp;
- Lt has good torque characteristic, and output torque can reach 150% nominal torque while 1Hz;
- **4** It has self-learning function which make it match motor well;
- It has a wide output frequency range and good frequency accuracy, and its resolution can reach 0.01Hz;
- It has PID controller which is used in closed-loop control system;
- It has Holip Communication Protocol and Modbus Protocol, and it is easier for user to build up centralized control system.



Technic:	Technical Data				
Modulation		SPWM			
AC line suppl	у	380V: 380±15%; 220V: 220±15%			
5 Digital Disr	olay & Status Indicator Lamp	Displaying frequency, current, revolution, voltage, counter, temperature,			
		forward or reverse, fault, etc.			
Communicati	on Mode	RS 485 serial communication			
Communicati	on Protocol	Holip Communication Protocol			
Commanieuri		Modbus Protocol			
		Ambient Temperature: -10~40°C			
Surroundings		Humidity: 0-95% Relative Humidity (Non-dewfall)			
		Vibration: Below 0.5g			
	Output Frequency Range	0.10~400.00Hz			
	Accuracy	Digital: 0.01% (-10~40°C)			
		Analog: 0.1% (25±10°C)			
	Reference Resolution	Digital: 0.01Hz			
Frequency		Analog: 1% of Maximum Output Frequency			
Control	Output Frequency Resolution	0.01Hz			
	LCP Frequency Setting	By the buttons of $\leftarrow \land \lor$			
	Analog Frequency Setting	External 0-5V, 0-10V, 4-20mA, 0-20mA			
	Other functions	Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass			
	Stile fulletions	function (Three settable frequency bypasses)			
	Ramp time	0.1-6500sec (There are four selectable ramp up / down time)			
	V/F Curve	It is possible to make a V/F curve on the basis of three definable voltage			
General	VII Cuive	and frequencie.			
Control	Torque Characteristic	Maximum torque compensation can reach 10%			
	Torque characteristic	Startup torque can reach 150% while 1Hz			
	Programmable Digital Input	Six programmable digital inputs for 8-speed control, Simple PLC, ramp			
		time switching, up and down function, counter, emergency stop, etc			
	Programmable Digital Output	Five programmable digital outputs for indicating running, counter, fault,			
	Tregrammaore Digital Carpar	Simple PLC status and alarms			
General		Automatic Voltage Regulation (AVR), Ramp to stop or Coast, DC brake,			
Control	Other functions	Automatic reset and restart, Flying start, Simple PLC, Wobble function,			
		quasi winding and unwinding function, Automatic energy-saving,			
		User-definable Carrier frequency (0.7-20kHz), etc.			
	Overload Protection	Electronic relay Protection for motor			
		Frequency converter (Constant torque: 150%/1 min, Fan: 120%/1 min)			
	Fuse Protection	If fuse has blown, motor will stop.			
	Over voltage Protection	220V Class: DC Voltage $> 400V$			
		380V Class: DC Voltage > 800V			
Protections	Under voltage Protection	220V Class: DC Voltage $< 200V$			
		380V Class: DC Voltage $< 400V$			
	Flying start after transient supply loss	Flying start after transient supply loss			
	Anti-stall Function	Prevent stalling when running, accelerating or decelerating			
	Output short circuit Protection	Electric circuit protection			
	Other functions	Heat sink over-temperature protection, Restriction against reverse, Fault			
		Reset, Parameter lock, One for two, etc.			



#### Wiring Diagram and Terminal Description

The wiring of the converter is divided into two parts: main circuit and control circuit. The following drawing is the factory standard wiring diagram of HLPM05D543B~HLPM07D543B models. The terminals should be connected correctly as the wiring diagram. (See user manual for details).



Note: P1, P are shorted internally.

Symbol	Description				
R, S, T	Power supply terminals (For single-phase, connect wires to any two terminals)				
U, V, W	Output terminals				
P, Pr	Braking Resistor terminals				
Е	Ground terminal				
+10V	10V DC supply				
VI	Voltage input terminal				
AI	Current input terminal				
AM	Programmable Pulse/Current Analog Output				
ACM	Common terminal for analog inputs				
DCM	Common terminal for digital inputs				
RS+, RS-	RS 485 Serial Communication Terminals				
Symbol	Description Factory Setting				
FOR	Programmable Digital Input	Forward			
REV	Programmable Digital Input	Reverse			
RST	Programmable Digital Input	Reset			
SPH	Programmable Digital Input	High speed			
SPM	Programmable Digital Input Medium speed				
SPL	Programmable Digital Input Low speed				
DRV	Programmable Digital Output (Optical coupling) Running				
UPF	Programmable Digital Output (Optical coupling)	Reach Reference			
FA, FB, FC	Programmable Digital Outputs (Normal close /Normal open)	Fault			
KA, KB	Programmable Digital output (Normal open)	No function			



Electrical Data						
Ordering number	Model	Mains supply	Power (kW)	Output Current (A)	Motor (kW)	LCP Model
333041	HLPM00D423C	1 & 3× 220V 50Hz	0.4	2.5	0.4	
333042	HLPM0D7523C	1 & 3× 220V 50Hz	0.75	5.0	0.75	OP-AC01
333043	HLPM01D523C	1 & 3× 220V 50Hz	1.5	7.0	1.5	
333046	HLPM02D223B	1 & 3× 220V 50Hz	2.2	11	2.2	
333045	HLPM03D723B	1 & 3× 220V 50Hz	3.7	17	3.7	OF-AB01
333056	HLPM0D7543C	3×380V 50Hz	0.75	2.7	0.75	
333051	HLPM01D543C	3×380V 50Hz	1.5	4.0	1.5	OP-AC01
333053	HLPM02D243C	3×380V 50Hz	2.2	5.0	2.2	
333052	HLPM03D743B	3×380V 50Hz	3.7	8.5	3.7	OP-AB01
333054	HLPM05D543B	3×380V 50Hz	5.5	12.5	5.5	
333055	HLPM07D543B	3×380V 50Hz	7.5	17.5	7.5	OF-AB02

Mechanical dimensions		
Model	Mechanical dimensions (Unit: mm)	
HLPM00D423C		
HLPM0D7523C	The same with HLPA00D423C	
HLPM01D523C		
HLPM02D223B	- The same with HLPA02D223B	
HLPM03D723B		
HLPM0D7543C		
HLPM01D543C	The same with HLPA0D7543C	
HLPM02D243C		
HLPM03D743B	The same with HLPA03D743B	
HLPM05D543B	The same with HI DA05D5/2D	
HLPM07D543B		

Note: Please refer to HLP-A part for the dimensions of HLP-M converter and its LCP, remote communication cable.

Note: When ordering, please confirm ordering number, model and specifications carefully.



# HLP-J Series Injection Machine Dedicated Frequency Converter

HLP-J series converter is specially designed for injection machines. It is specially added two analog current inputs for the two control signals of pressure and flow from injection machine. It uses cabinet type case and has little electromagnetic interference to other equipments.

HLP-J series converter is designed cabinet style. There is a switch on the cabinet with which user can choose the injection machine supplied by the converter or the main line.

Furthermore, the converter has high startup torque, automatic voltage regulation and energy-saving functions. Power range: 11-75 kW (3×380V)



#### **Functions and Features**

- Lt has a wider tolerance for the changes of supply voltage by 15%;
- With the switch on the cabinet, user can choose the injection machine supplied by it or the main line;
- 4 It is added two analog inputs specially for the two 0-1A current signals from injection machine;
- It uses cabinet type case and has little interference to environment because of the special treatment to EMI;
- 4 It has good torque characteristic, and output torque can reach 150% nominal torque while 1Hz;
- It has good overload capacity which can reach 150% 1 min, and 180 % 0.2 sec;
- It has Holip Communication Protocol and Modbus Protocol, and it is easier for user to build up centralized control system.



Technical	l Data	
Modulation		SPWM
AC line supply	1	3×380V: 340-460V
5 Divital Digal	ar & Status Indicator I and	Displaying frequency, current, revolution, voltage, counter, temperature, forward
5 Digital Displ	ay & Status Indicator Lamp	or reverse, fault, etc.
Communicatio	n Mode	RS 485 serial communication
Commission	n Dusta asl	Holip Communication Protocol
Communicatio	n Protocol	Modbus Protocol
	Rated current	100%
Output Data	Manimum and a damage	150% 1 min
	Maximum overload current	180% 0.2 sec
	Frequency Control Range	0.10~400.00Hz
	A	The output voltage can keep constant when the supply voltage changes, if AVR
	Automatic voltage Regulation	function is active.
	E	Digital: 0.01% (-10~40°C)
	Frequency Accuracy	Analog: 0.1% (25±10°C)
	Defense a Develution	Digital: 0.01Hz
	Reference Resolution	Analog: 1% of Maximum Output Frequency
	Output Frequency Resolution	0.01Hz
		LCP
	Reference Source	Analog 0~1A current input terminal
		Analog 0~10V input terminal
Control and		Analog 4~20mA input terminal
Operate	Breaking Torque	Below 22kW: >20%
Operate	breaking forque	Above 30kW: >15%
	Ramp time	0.1-6500sec (There are four selectable ramp up / down time)
	V/F Curro	It is possible to make a V/F curve on the basis of three definable voltage and
		frequencie.
	Torque Characteristic	Maximum torque compensation can reach 10%
		Startup torque can reach 150% while 1Hz
	Programmable Digital Input	Six programmable digital inputs for Simple PLC and emergency stop, etc
	Programmable Digital Output	Five programmable digital outputs for indicating status of running, counter, fault,
		Simple PLC and alarm
		Overload Protection, Fuse Protection, Over voltage Protection, Under voltage
	Protections	Protection, Heat sink over-temperature Protection, Output short circuit Protection,
		Anti-stall Function, etc.



# Wiring Diagram and Terminal Description

The wiring of the converter is divided into two parts: main circuit and control circuit. The following drawing is factory standard wiring diagram of HLP-J. The terminals should be connected correctly as the wiring diagram. (See user manual for details).



Symbol	Description				
<b>R</b> , <b>S</b> , T	Power supply terminals (For single-phase, connect wires to any two terminals)				
U, V, W	Output terminals				
P+, N-	Braking chopper terminals				
Е	Ground terminal				
DCM	Common terminal for digital inputs				
VR (+10V)	10V DC supply				
VI	Analog Voltage Input				
AI	Analog Current Input				
IA+, IA-	Analog Current Input (0-1A)				
IB+, IB-	Analog Current Input (0-1A)	Analog Current Input (0-1A)			
VO	Programmable Analog/Pulse Output 0-10V				
ACM	Common terminal for analog inputs				
RS+, RS-	RS 485 Serial Communication Terminals				
Symbol	Description Factory Setting				
FOR	Programmable Digital Input	Forward			
REV	Programmable Digital Input	Reverse			
RST	Programmable Digital Input	Reset			
SPH	Programmable Digital Input	Programmable Digital Input High speed			
SPM	Programmable Digital Input Medium speed				
SPL	Programmable Digital Input Low speed				
DRV	Programmable Digital Output (Optical coupling) Running				
UPF	Programmable Digital Output (Optical coupling)	Reach Reference			
FA, FB, FC	Programmable Digital Outputs (Normal close /Normal open)	Fault			
KA, KB	Programmable Digital output (Normal open)	No function			



Electrical Data						
Ordering number	Model	Mains supply	Power (kW)	Output Current (A)	Motor (kW)	
333600	HLPJ001143B	3×380V 50Hz	11	24	11	
333601	HLPJ001543B	3×380V 50Hz	15	33	15	
333602	HLPJ18D543B	3×380V 50Hz	18.5	40	18.5	
333603	HLPJ002243B	3×380V 50Hz	22	47	22	
333607	HLPJ003043B	3×380V 50Hz	30	65	30	
333608	HLPJ003743B	3×380V 50Hz	37	80	37	
333610	HLPJ004543B	3×380V 50Hz	45	91	45	
333609	HLPJ005543B	3×380V 50Hz	55	110	55	
333611	HLPJ007543B	3×380V 50Hz	75	152	75	

Mechanical dimensions						
Model	А	В	С	D	Е	Mechanical dimensions (Unit: mm)
HLPJ001143B						11 II I
HLPJ001543B	610	305	245	275	180	••••°×° ==
HLPJ18D543B						
HLPJ002243B	770	200	300	260	250	==
HLPJ003043B	//0	290	500	200	250	
HLPJ003743B	980	345	350	315	300	
HLPJ004543B	1140	420	250	400	200	
HLPJ005543B	1140	450	550	400	500	
HLPJ007543B	1140	520	350	490	300	

Note: Please refer to HLP-A part for the dimensions and remote communication cable of LCP.

Note: When ordering, please confirm ordering number, model and specifications carefully.



# HLP-H Series Medium Frequency Converter

HLP-H series converter is dedicated to high-speed applications. It has much wider frequency range from 0.1Hz to 3000Hz and high frequency resolution 0.01Hz.

The converter is featured by smooth start, low noise, good cooling capacity and high stability, etc.



#### Power range: 0.4-7.5 kW (1 & 3×220V), 0.75-45kW (3×380V)

#### **Functions and Features**

- Lt has high reliability with the motor control IC+IGBT at the core;
- It is possible to make a V/F curve on the basis of three definable voltage and frequency.
- It has high control accuracy and good overload capacity which can reach 150% (1 min);
- It has a wider tolerance for the changes of supply voltage by 15%;
- It is qualified to a variety of applications for its PID controller;
- It has simple PLC functions such as wobble, multi-speed control and so on;
- It has good cooling capacity;
- 4 It has Holip Communication Protocol and Modbus Protocol, and it is easier for user to build up centralized control system.



Technical	Data		
Modulation			SPWM
AC line supply			380V: 380±15%; 220V: 220±15%
			Displaying frequency, current, revolution, voltage, counter, temperature,
5 Digital Displa	ay & Status Indicator Lam	р	forward or reverse, fault, etc
Communication	n Mode		RS 485 serial communication
G	Det 1		Holip Communication Protocol
Communication	n Protocol		Modbus Protocol
			Ambient Temperature: -10~40°C
Surroundings			Humidity: 0-95%Relative Humidity (Non-dewfall)
			Vibration: Below 0.5g
		Range	0.10~3000.00Hz
	Output Frequency	Accuracy	Digital: 0.01% (-10~40°C)
		Accuracy	Analog: 0.1% (25±10°C)
	Reference Resolution		Digital: 0.01Hz
Frequency			Analog: 1‰ of Maximum Output Frequency
Control	Output Frequency Resol	ution	0.01Hz
	LCP Frequency Setting		By the buttons of $\leftarrow \land \lor$
	Analog Frequency Settin	ng	External 0-5V, 0-10V, 4-20mA, 0-20mA
	Other functions		Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass
			function (Three settable frequency bypasses)
	Ramp time		0.1-6500sec (There are four selectable ramp up / down time)
	V/F Curve		It is possible to make a V/F curve on the basis of three definable voltage
			and frequencie.
	Torque Characteristic		Maximum torque compensation can reach 10%
			Startup torque can reach 150% while 1Hz
General	Programmable Digital Inputs		Six programmable digital Inputs for 8-speed control, Simple PLC, ramp
Control			times switching, up and down function, counter, emergency stop, etc
	Programmable Digital Output		Five programmable digital outputs for indicating status of running,
			counter, fault, Simple PLC and alarms
			Automatic Voltage Regulation, Ramp to stop or Coast, DC brake,
	Other functions		Automatic reset and restart, Flying start, Simple PLC, Wobble function,
			quasi winding and unwinding function, Automatic energy-saving,
			User-definable Carrier frequency (0.7-20kHz), etc.
	Overload Protection		Electronic relay Protection for motor, Frequency converter (Constant
			torque: 150% / 1 min , Fan: 120% / 1 min)
	Fuse Protection		If fuse has blown, motor will stop
	Over voltage Protection		220V Class: DC Voltage $> 400V$
			380V Class: DC Voltage > 800V
Protections	Under voltage Protection	1	220V Class: DC Voltage $< 200V$
	Elving start often transier		Stov Class: DC voltage < 400v
	Anti stall Evention	it supply loss	Provent stalling when running, applarating or decalarating
	Output short sirouit Drot	action	Electric circuit protection
	Output short circuit Prot	ection	Heat sink over temperature protection. Destriction against reverse Fault
	Other functions		Reset Barameter look One for two at:
			Keset, rarameter lock, One for two, etc.



#### Wiring Diagram and Terminal Description

The wiring of the converter is divided into two parts: main circuit and control circuit. The following drawing is the factory standard wiring diagram of HLPH001143B~HLPH003043B models. The terminals should be connected correctly as the wiring diagram. (See user manual for details).



Symbol	Description					
R, S, T	Power supply terminals (For single-phase, connect wires to any two terminals)					
U, V, W	Output terminals	Output terminals				
P, N	Braking chopper terminals					
Е	Ground terminal					
DCM	Common terminal for digital inputs					
+10V	10V DC supply					
VI	Voltage input terminal					
AI	Current input terminal					
AM	Programmable Pulse/Current Analog Output					
ACM	Common terminal for analog inputs					
RS+, RS-	RS 485 Serial Communication Terminals					
Symbol	Description	Factory Setting				
FOR	Programmable Digital Input	Forward				
REV	Programmable Digital Input	Reverse				
RST	Programmable Digital Input	Reset				
SPH	Programmable Digital Input High speed					
SPM	Programmable Digital Input Medium speed					
SPL	Programmable Digital Input Low speed					
DRV	Programmable Digital Output (Optical coupling) Running					
UPF	Programmable Digital Output (Optical coupling)	Reach Reference				
FA, FB, FC	Programmable Digital Outputs (Normal close /Normal open)	Fault				
KA, KB	Programmable Digital output (Normal open)	No function				



Electrical Data						
Ordering number	Model	Mains supply	Power (kW)	Output Current (A)	Motor (kW)	LCP Model
333220	HLPH00D423C		0.4	2.5	0.4	
333221	HLPH0D7523C	1 & 3×220V 50Hz	0.75	5.0	0.75	OP-AC01
333222	HLPH01D523C		1.5	7.0	1.5	
333234	HLPH02D223B		2.2	11	2.2	
333224	HLPH03D723B	1 & 2 × 220V 50Uz	3.7	17	3.7	OF-AD01
333236	HLPH05D523B	$1 \propto 3 \wedge 220 \vee 30112$	5.5	25	5.5	OP 4802
333237	HLPH07D523B		7.5	33	7.5	OF-AD02
333230	HLPH0D7543C		0.75	2.7	0.75	
333231	HLPH01D543C	3×380V 50Hz	1.5	4.0	1.5	OP-AC01
333232	HLPH02D243C		2.2	5.0	2.2	
333233	HLPH03D743B		3.7	8.5	3.7	OP-AB01
333207	HLPH05D543B		5.5	12.5	5.5	
333247	HLPH07D543B		7.5	17.5	7.5	
333200	HLPH001143B		11	24	11	
333201	HLPH001543B	3×380V 50Hz	15	33	15	
333202	HLPH18D543B	5~380 V 50112	18.5	40	18.5	OP-AB02
333203	HLPH002243B		22	47	22	
333204	HLPH003043B		30	65	30	
333205	HLPH003743B		37	80	37	
333206	HLPH004543B		45	91	45	

Mechanical dimensions						
Model	Mechanical dimensions	Model	Mechanical dimensions			
HLPH00D423C		HLPH03D743B	The same with HLPA03D743B			
HLPH0D7523C	The same with HLPA00D423C	HLPH05D543B	The same with HI PA05D543B			
HLPH01D523C		HLPH07D543B	The same with HEFA05D545B			
HLPH02D223B	The same with HI PA02D223B	HLPH001143B	The same with UI <b>BA001142B</b>			
HLPH03D723B	The same with TILL A02D225B	HLPH001543B	The same with fill A001145B			
HLPH05D523B	The same with HI BAASD 522B	HLPH18D543B	The same with HI DA 19D5/12D			
HLPH07D523B	The same with TEFA05D525B	HLPH002243B	The same with TEPAT8D343B			
HLPH0D7543C		HLPH003043B	The same with HLPA003043B			
HLPH01D543C	The same with HLPA0D7543C	HLPH003743B	The same with HI PA002742P			
HLPH02D243C		HLPH004543B	The same with TILLA005/45B			

Note: Please refer to HLP-A part for the dimensions of HLP-H converter and its LCP, LCP remote communication cable.

Note: When ordering, please confirm ordering number, model and specifications carefully.



# **HLP-CP Series Treadmill and Knitter Dedicated Frequency Converter**

HLP-CP series converter, which has small size, low noise, good anti-interference capacity and high startup torque, is specially designed for treadmill and knitter. The converter has PID controller and Simple PLC function.

Power range: B: 0.4-2.2kW (1 & 3×220V); BZ / BH: 0.4-1.5kW (1 & 3×220V)

### **HLP-CP Functions and Features**

- It has high reliability with PIM at the core; 4
- It has good anti-interference capacity; 4
- It has PID controller and Simple PLC; 4
- It has high output torque which can reach 150% while 1 Hz; 4
- It has low noise, and its carrier frequency can be as high as 16kHz; 4
- It has Holip Communication Protocol and Modbus Protocol, and it is easier for user to build up centralized control system. <u>.</u>

Technical	l Data				
Modulation		SPWM			
AC line supply	,	400V: 345-440V; 230V: 170-230V			
Communicatio	n Mode	RS 485 serial communication			
a : .:		Holip Communication Protocol			
Communicatio	n Protocol	Modbus Protocol			
4 Digital Displ	ay & Status Indicator Lamp	Displaying Frequency, current, torque, voltage, Counter, Temperature, pressure, forward or reverse, fault, etc.			
Ambient Temp	erature	$-10 \sim 40 ^{\circ}\mathrm{C}$			
Humidity		0 - 95% Relative Humidity (Non-dewfall)			
Vibration		Below 0.5g			
	Output Frequency Range	0.10 ~ 600.00Hz			
Frequency	Accuracy	Digital: 0.01% (-10~40°C); Analog: 0.1% (25±10°C)			
	Reference Resolution	Digital: 0.1Hz Analog: 1‰ of Maximum Output Frequency			
	Output Frequency Resolution	0.1Hz			
Control	LCP Frequency Setting	By buttons of $\bigwedge \bigvee$			
	Analog Frequency Setting	External 0-5V, 0-10V, 4-20mA, 0-20mA			
	Other functions	Frequency low limit, Start Frequency, Stop Frequency, Frequency bypass function (Three settable frequency bypasses), etc.			
	Ramp time	0.1-6500sec (There are four selectable ramp up / down time)			
	N/E Comme	It is possible to make a V/F curve on the basis of three definable voltage and			
	V/F Curve	frequencie.			
	Torque Characteristic	Maximum torque compensation can reach 10% Startup torque can reach 150% while 1Hz			
General	Programmable Digital Input	Six programmable digital Inputs for 8-speed control, Simple PLC, ramp times switching, up and down function, counter, emergency stop, etc			
Control	Programmable Digital Output	Two programmable digital output, indicating status of running, counter, fault, Simple PLC and Alarm			
	Other functions	Automatic Voltage Regulation, Ramp to stop or Coast, DC brake, Automatic reset and restart, Flying start, Simple PLC, Wobble function, quasi winding and unwinding function, Automatic energy-saving, User-definable Carrier frequency (1.5-16kHz), etc.			
	Over voltage Protection	220V Class: DC Voltage $> 400$ V 380V Class: DC Voltage $> 800$ V			
	Under voltage Protection	220V Class: DC Voltage $< 200$ V 380V Class: DC Voltage $< 400$ V			
Deterio	Flying start after transient supply loss	Flying start after transient supply loss			
Totections	Anti-stall Function	Prevent stalling when running, accelerating or decelerating			
	Output short circuit Protection	Electric circuit protection			
	Other functions	Heat sink over-temperature protection, Restriction against reverse, Fault Reset, Parameter lock, etc.			





# **Terminal Description**

The wiring of the converter is divided into two parts: main circuit and control circuit. The following drawing is the factory standard wiring diagram of HLP-CP. The terminals should be connected correctly as the wiring diagram (See user manual for details).





•_2	•4	•6	•8	•10	• 12	• 14	•16
•1	•3	•5	7	•9	•11	•13	<b>1</b> 5

Number	Symbol	Number	Symbol
1	FOR	9	GND
2	REV	10	AM
3	RST	11	VI
4	SPH	12	AI
5	SPM	13	RS-
6	SPL	14	RS+
7	+10V	15	GND
8	DRV	16	+5V

Symbol	Description							
R, S, T	Power supply terminals (For single-phase, connect wires to any two terminals)							
U, V, W	Output terminals							
Е	Ground terminal							
FAN	-9V supply of fan							
+15V	15V power supply for external device							
+10V	10V DC supply							
VI	Voltage input terminal							
AI	Current input terminal							
AM	Programmable Pulse/Current Analog Output							
GND	Common terminal for analog inputs							
+5V	5V power supply							
Symbol	Description	Factory Setting						
FOR	Programmable Digital Input	Forward						
REV	Programmable Digital Input	Reverse						
RST	Programmable Digital Input	Reset						
SPH	Programmable Digital Input	High speed						
SPM	Programmable Digital Input	Medium speed						
SPL	Programmable Digital Input	Low speed						
DRV	Programmable Digital Output (Optical coupling)	Running						
KA, KB	Programmable Digital Outputs (Normal open)	Fault						
KB, KC	Programmable Digital Outputs (Normal closed)	Fault						



Electrical I	Data				
Ordering number	Model	Mains supply	Power (kW)	Output Current (A)	Motor (kW)
333100	HLPCP00D423B	1 & 3×220V 50/60Hz	0.4	2.5	0.4
333101	HLPCP0D7523B	1 & 3×220V 50/60Hz	0.75	5.0	0.75
333102	HLPCP01D523B	1 & 3×220V 50/60Hz	1.5	7.0	1.5
333103	HLPCP02D223B	1 & 3×220V 50/60Hz	2.2	10	2.2
333160	HLPCP00D423BZ	1 & 3×220V 50/60Hz	0.4	2.5	0.4
333161	HLPCP0D7523BZ	1 & 3×220V 50/60Hz	0.75	5.0	0.75
333162	HLPCP01D523BZ	1 & 3×220V 50/60Hz	1.5	7.0	1.5
333163	HLPCP00D423BH	1 & 3×220V 50/60Hz	0.4	2.5	0.4
333164	HLPCP0D7523BH	1 & 3×220V 50/60Hz	0.75	5.0	0.75
333165	HLPCP01D523BH	1 & 3×220V 50/60Hz	1.5	7.0	1.5

Note: When ordering, please confirm ordering number, model and specifications carefully.

Note: Standard HLP-CP attaches a LCP whose model is OP-CB04.

Note: Please refer to HLP- C<sup>+</sup> part for the dimensions of LCP and remote communication cable.

Mechanical dimens	sions												
Model	A	В	С	D	Е	F	G	Н	Mechanical dimensions (Unit: mm)				
HLPCP00D423B													
HLPCP0D7523B							107				42		В
HLPCP01D523B	111	125	186	200	110	Φ5	43	170					
HLPCP02D223B													
HLPCP00D423BZ/BH													
HLPCP0D7523BZ/BH	111	125	186	200	107.5	Φ5	41	170					
HLPCP01D523BZ/BH													
HLPCP00D423BZ/BH													
HLPCP0D7523BZ/BH	111	125	186	200	107.5	Φ5	41	170					
HLPCP01D523BZ/BH													

Note: The model which ends with B represents treadmill dedicated converter, and which ends with BZ/BH represents knitter dedicated converter.



# **General Optional Parts**

#### DC reactor

DC reactor functions by limiting the AC component on it to certain stipulated value; suppressing grid harmonics and improving the power factor of frequency converter. Connecting method: Remove the P and P1 terminal jumper, and connect the DC reactor to them, as shown in the diagram on the right.

Where the power capacity is greater than 1000kVA or the power grid's capacity is far larger than that of the frequency converter, or in case where there are higher requirements for improving power factors, it would be necessary to install a DC re



Note: Connecting point reserved on 37W HLP frequency converter; no connection is allowed for those below 37W.

improving power factors, it would be necessary to install a DC reactor. It will be used simultaneously with the AC reactor. It has a significant impact on the reduction of high-order harmonics.

The following table lists the DC reactor parts for HLP-V series frequency converter. If installation is required, a user can order from the distributor based on the part numbers and specifications.

Part No.	Power (kW)	Specifications	Part No.	Power (kW)	Specfications
112300 11	0033	EIDH	E2M0 112308	0180	UIDH
112300 15	0033	EIDH	E2M0 112310	0250	UIDH
112301 18.5	0040	EIDH	E1M3 112310	0250	UIDH
112302 22	0050	EIDH	E1M1 112311	0340	UIDH
112303 30	0065	EIDH	EM80 112312	0460	UIDH
112304 37	0078	EIDH	EM70 112313	0650	UIDH
112305 45	0095	EIDH	EM54 112314	0800	UIDH
112306 55	0115	EIDH	EM45 112314	0800	UIDH
112307 75	0160	UIDH	EM36 112315	1000	UIDH

For other Holip frequency converter series, please refer to the table's attendant DC reactor.

#### AC input/output reactor

DC reactor can suppress high-order harmonics of the frequency converter's input current and improve the input power factor of the frequency converter. It also prevents surge impact. The connecting method is as shown in the diagram on the right.

Output reactor's main function is to compensate the impact of longline distributed capacitance. It can also suppress the output harmonic current; raise output high frequency impedance as well as effectively



suppress dv/dt, thus reducing high frequency leakage current and protecting the frequency converter and lowering equipment noise.

Use of input Ac reactor is recommended in situations where the three-phase power sources is imbalanced or where the same power source is connected to thyristor device or in the case of power factor compensating device with switching controls.

The following table lists the AC input/output reactor parts for HLP-V series frequency converter. If installation is required, a user can order from the distributor based on the part numbers and specifications.

Dowor (1-W)	External	Input Reactor	External Input Reactor				
rower (kw)	Part No.	Specifications	Part No.	Specfications			
11 112350	0030	EISH	EM60 112400 OCL	0030			
15 112351	0040	EISH	EM42 112401 OCL	0040			
18.5 112352	0050	EISH	EM35 112402 OCL	0050			
22 112353	0060	EISH	EM28 112403 OCL	0060			
30 112354	0080	EISC	EM19 112404 OCL	0080			
37 112355	0090	EISC	EM19 112405 OCL	0090			
45 112356	0120	EISH	EM13 112406 OCL	0120			
55 112357	0150	EISH	EM11 112407 OCL	0150			
75 112358	0200	EISH	EM08 112408 OCL	0200			
90 112359	0250	EISH	E65U 112409 OCL	0250			
110 112359	0250	EISH	E65U 112409 OCL	0250			
132 112360	0290	EISH	E50U 112410 OCL	0290			
160 112361	0330	EISH	E50U 112411 OCL	0330			
200 112362	0490	EISH	E35U 112412 OCL	0490			
250 112363	0530	EISH	E35U 112413 OCL	0530			
315 112364	0660	EISH	E25U 112414 OCL	0660			
355 112365	0800	EISH	E25U 112415 OCL	0800			
400 112367	1000	EISH	E14U 112416 OCL	1000			

For other Holip frequency converter series, please refer to the table or the Instruction Manual's attendant input/output DC reactor, or inquire with the distributor.



#### Input/output filter

Filters are used to reduce harmonic components, and suppress interference signals from frequency converter which interfere with the power source and engine through the power line. To reduce electromagnetic noise and loss, output filter may be installed on the output side of the frequency converter. To reduce interference with power source, input filter may be installed in the input side of the frequency converter.

The following table lists the AC input/output filter for HLP-V series frequency converter. If installation is required, a user can order from the distributor based on the part numbers and specifications.

Power	Power External input filter		External o	External output filter		External	input filter	External output filter	
(kW)	Part No	Specifications	Part No	Specifications	(kW)	Part No	Specifications	Part No	Specifications
11	110200	NFI-036	110250	NFO-036	90	110206	NFI-200	110256	NFO-200
15	110200	NFI-036	110250	NFO-036	110	110207	NFI-250	110257	NFO-250
18.5	110201	NFI-050	110251	NFO-050	132	110207	NFI-250	110257	NFO-250
22	110201	NFI-050	110251	NFO-050	160	110208	NFI-300	110258	NFO-300
30	110202	NFI-065	110252	NFO-065	200	110209	NFI-400	110259	NFO-400
37	110203	NFI-080	110253	NFO-080	250	110210	NFI-600	110260	NFO-600
45	110204	NFI-100	110254	NFO-100	315	110210	NFI-600	110260	NFO-600
55	110205	NFI-150	110255	NFO-150	355	110211	NFI-900	110261	NFO-900
75	110205	NFI-150	110255	NFO-150	400	110211	NFI-900	110261	NFO-900

For other Holip frequency converter series, please refer to the table or the Instruction Manual's attendant input/output filter, or inquire with the distributor.

#### Braking unit and braking resistor

The function of the braking unit and braking resistor is to consume the motor's regenerative power and reduce speed-reduction time. Please refer to the Instruction Manual for the configuration of braking unit and braking resistor.

HLP-A, HLP-M, HLP-F and HLP-J series of frequency converter with similar power factor is equipped with braking resistor of similar specification, the user may refer to the following table.

Frequency	specifications for	r the braking resistor	Braking	Dedicated	Frequency	specifications for the	braking resistor	Braking	Dedicated
kW	W	Ω	10%ED	kW	kW	W	Ω	10%ED	kW
0.4	80	200	125	0.4	37	9600	16	125	37
0.75	100	200	125	0.75	45	9600	13.6	125	45
1.5	300	100	125	1.5	55	12000	20/2	125	55
2.2	300	70	125	2.2	75	18000	13.6/2	125	75
0.75	80	750	125	0.75	90	18000	20/3	125	90
1.5	300	400	125	1.5	110	18000	20/3	125	110
2.2	300	250	125	2.2	132	24000	20/4	125	132
3.7	400	150	125	3.7	160	36000	13.6/4	125	160
5.5	500	100	125	5.5	185	45000	13.6/5	125	185
7.5	1000	75	125	7.5	200	45000	13.6/5	125	200
11	1000	50	125	11	220	48000	13.6/5	125	220
15	1500	40	125	15	250	48000	13.6/5	125	250
18.5	4800	32	125	18.5	280	57600	13.6/6	125	280
22	4800	27.2	125	22	300	57600	13.6/6	125	300
30	6000	20	125	30	For machinery bral	king resistor of 3	15kW and at	ove please contact	the manufacturer

Note: If frequency converter of 11kW and above were to achieve rapid braking, it would be necessary to install braking unit

#### ! Attention

1. Please select the resistance value and usage frequency set by the company;

2. Our company shall not be liable for any damage to the frequency converter or other equipment where braking resistor and braking unit not supplied by our company were used;

3. Installation of braking resistor should take into consideration the safety; inflammability; the distance from frequency converter should be at least 100mm;

4. Please contact the local distributor if resistance value and power factor were to be changed;

5. Please contact the local distributor if individual orders for braking resistor or braking unit were required.



Frequency Converter	Specifications for the braking resistor		Braking Dedicated		Frequency	Specifications for the braking resistor		Braking	Dedicated Motor
kW	$\begin{array}{c c} \mathbf{W} & \mathbf{\Omega} \end{array}  \begin{array}{c} \text{torque} & \text{Motor} & \text{Coll} \\ \hline \mathbf{W} & \mathbf{\Omega} & 10\%\text{ED} & \text{kW} \end{array}$		kW	W	Ω	10%ED	kW		
1.5 (single-phase 220-240V)	300	75	125	1.5	2.2 (three-phase 380-480V)	300	250	125	2.2
1.5 (three-phase 220-240V)	300	100	125	1.5	3.0 (three-phase 380-480V)	400	150	125	3.0
1.5 (three-phase 380-480V)	300	400	125	1.5	3.7 (three-phase 220-240V)	400	50	125	3.7
2.2 (single-phase 220-240V)	300	50	125	1.5	4.0 (three-phase 380-480V)	500	100	125	4.0
2.2 (three-phase 220-240V)	300	70	125	1.5	5.5 (three-phase 380-480V)	500	75	125	5.5

HLP-NV and HLP-SV series of frequency converter with similar power factor is equipped with braking resistor of similar specification, the user may refer to the following table.

Note: Please inquire with the manufacturer or distributor for specifications of braking resistor for frequency converter of other power rating, or refer to the calculation formula of HLP-V/VS braking resistor.

The calculation formula for HLP-V/VS series of frequency converter is as follows:

$$R_{REC} = \frac{U_{dc}^{2} * 100}{P_{motor} * M_{br(\%)} * \eta_{motor} * \eta_{HLP-1}}$$

Where: Udc is the turn-on voltage for braking (V); RREC is the resistance value of the braking resistor ( $\Omega$ ); Pmotor is the motor power rating (kW); µmotor is the motor efficiency, which is usually 0.90; µHLP-V is the frequency converter's efficiency, which is usually 0.98, and Mbr is the braking torque (%).

In order to ensure that the frequency converter can undertake braking at 160% of maximum braking torque (Mbr), RREC can be indicated as (unit:  $\Omega$ ):

Three-phase 200-240V: RREC = 97.009 / PMOTORThree-phase 380-440V: RREC =377.621 / PMOTORThe maximum power for braking resistor is (Unit: W): Three-phase 200-240V: P = 3702 \*t/(RREC \*120)Three-phase 380-440V: P = 7302 \*t/(RREC \*120)Where t is the braking time, unit is s.

#### Circuit breaker for connection and leakage switch

The frequency converter's wiring can be protected by installing relay on the power source side. Please refer to the Instruction Manual for the converter for setting of volume of air circuit breaker and cross section area of the wire.

As the inside of the converter; inside of the electric motor and the input and output write all have electrostatic capacitor to ground, the carrier frequency of the converter is relatively high, its leakage current to ground is therefore correspondingly large. This is more obvious in the case of large-capacity machines. Using leakage switch can sometimes lead to erroneous action for protective circuit. Therefore leakage switch should be equipped with high-order harmonics, with suitable reduction of carrier frequency, and shorten lead, etc.

#### Electromagnetic contactor and surge absorber

Set the electromagnetic contactor in order to prevent burnt braking resistor. When it is used in the wire circle the surge absorber should be used to absorb electromagnetic contactor and surge current from the control relay switch.

#### Isolation transformer

Isolation transformer possesses the input and output function of isolation frequency converter, and has certain effect for lowering interference.





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