SAMPLE APPROVAL SHEET

PART NO.:	
PRODUCT MODEL:	LKG6108 6KW high frequency intelligent charger
NAME/SPEC:	48V 100A
CUSTOMERNAME:	

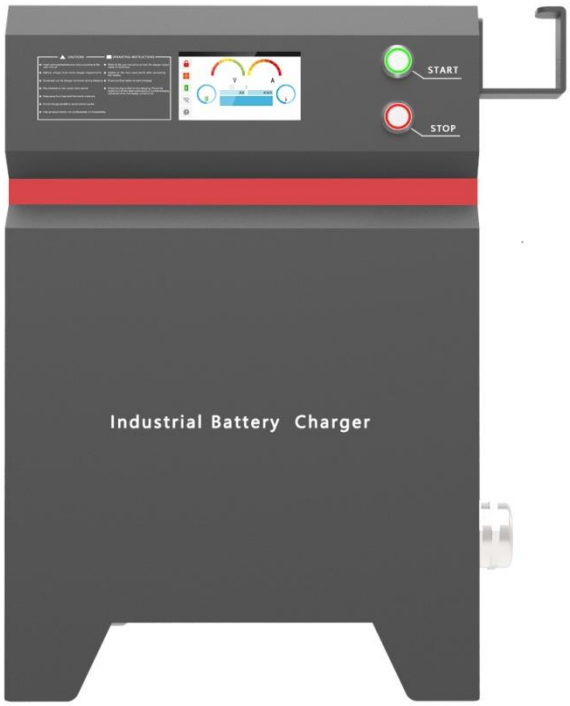
	Electrical	Material	Structure	Other
PASS				
Fail				
Other				
Director				

Remark:

ISSUE	CHECK	APPROVAL

LKG-21-001 V0

LKG 6108
Charger Product Spec



Spec. LKG 6108

Version V1.0

Compile:	Check:	Approve:
Hai Qin	Zhaojun Liao	Liping Xu

LKG-RD-002 V0

Compile	Hai Qin	QE	Liangjun Hao
Hardware	Zhaojun Liao	Check	Zhaojun Liao
Software	Weijie He	Approve	Liping Xu

Change Record

Version No.	Update No	Update date	Modify the description	Compile
V1.0		2020-05-23	First version	Zhaojun Liao

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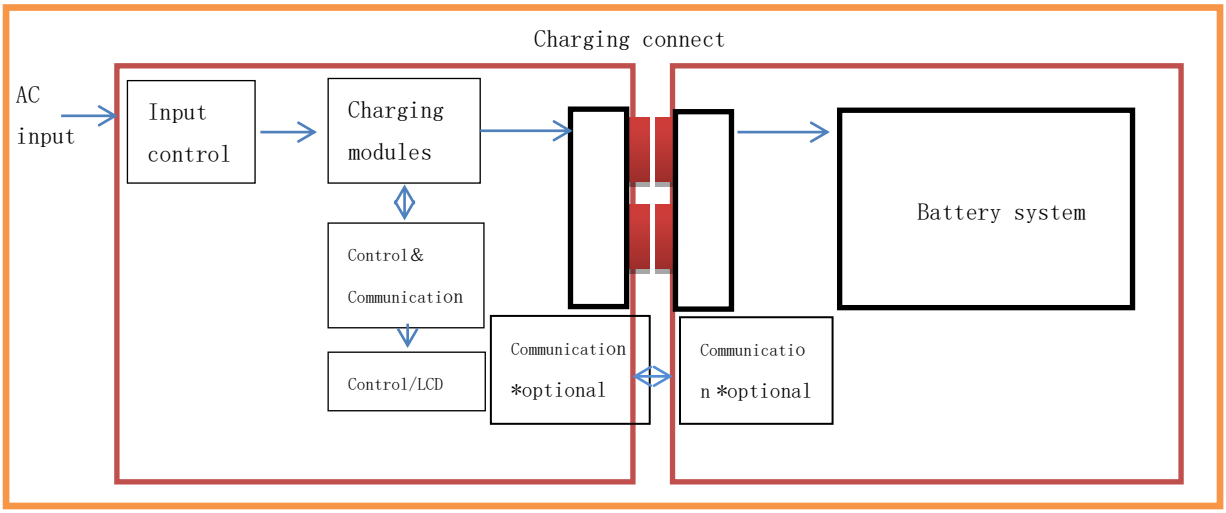
PEARL COTTON,CARTON 13

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1 Product Description

Welcome to use Charger LKG 6108 made by LINKAGE this industrial battery intelligent charger is an High-efficiency,fast,small volume,has CAN communication ground charging device for lithium batteries. The intelligent charger has a Three-phase power(L1,L2,L3,N,PE)380V AC input， The maximum output is 6KW.It uses fan cooling mode,has the protection functions of inputover-voltage,under-voltage,outputover-voltage,under-voltage,over-current,over-temperature,output short circuit,fan failure and so on. At the same time,it meets the requirements of RoHS and CE certification.



System architecture diagram

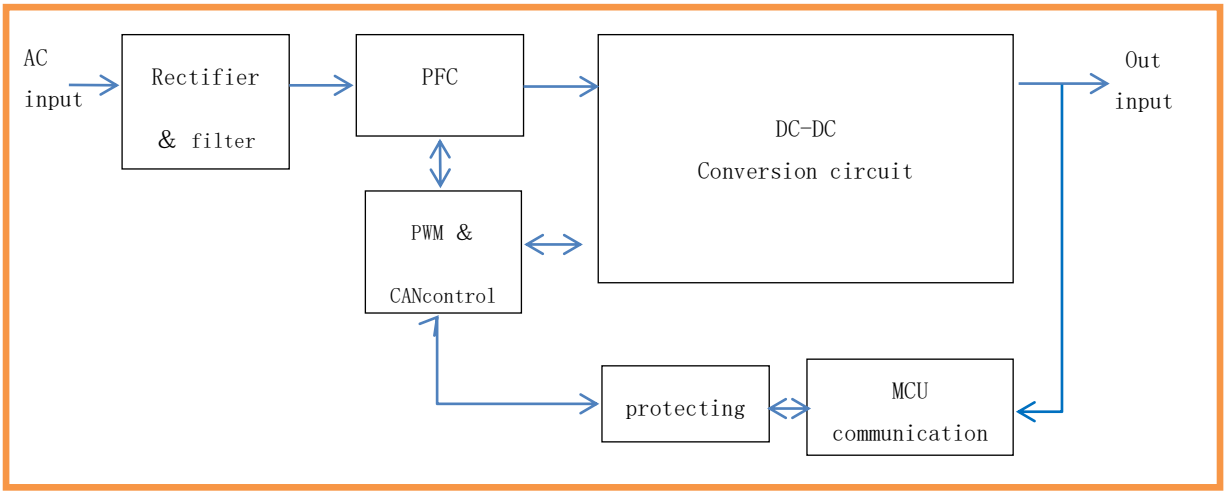


Diagram of charging module framework

2 Charger Electrical Parameters

2.1 Charger technical parameters

Item	Parameters	Remark
AC Input：		
Rated input voltage	380Vac	L1+L2+L3+N+PE
Input voltage range	±10%	/
Input cable length	3M	/
Frequency range	47-63 Hz	/
Input current	≤30A Max	Three-phase current sum
	≤15A Max	Each-phase current
Efficiency	≥90%	Rated input and output
Power factor	≥0.99	Rated input and output
DC Output:		
Rated output voltage	48V	/
Output voltage range	32-60V	Communication adjustment
output current	100A	/
Output power	6KW	Max output power
Auxiliary supply output voltage	12/24V	Optional, power supply for BMS
Auxiliary supply output current	3A	Optional, power supply for BMS
Load adjustment rate	±5%	10% to 90% load
Current precision	±2%	/
Voltage precision	±5%	/
Ripple voltage	≤±1%Vo (p-p)	20MHz
MTBF	50000H	25℃
Output cable、connector：		
Output connector	Anderson/REMA/GB Charger gun / Other	/
Output cable length	3M	/
Output cable Spec.	35	mm²
Communication：		
communication method	RS485/RS232/CAN bus	Communicate with battery
Communication agreement	Customer provided	Communicate agreement with BMS battery
Charger：		
Size	L420*W275*H630mm	Charger size
Weight	<40Kg	Net weight
	<55.5Kg	Complete weight (with package)

2.2 Safety Features

Item	Parameters	Remark	Item
Isolation voltage	Vac	Input to the case 2120 Vac, 1min, leak current<30 mA	Remove discharge tube test, require no arc, no breakdown
Isolation voltage	Vac	Input to output2120 Vac; 1min, leak current<30 mA	
Isolation voltage	Vdc	Output to case 500 Vac; 1min, leak current<30 mA	
Insulation resistance	MΩ	Input to output≥1 MΩ; output to case＞5 MΩ	500Vdc test;25℃

2.3 Protect Function

Item	Unit	Parameters	Remark
Input overvoltage protection (software、 hardware)	Vac	≥476	Self-recovery
Input undervoltage protection (software、hardware)	Vac	≤285	
Output overcurrent protection (software、 hardware)	A	≥110%Io	
Output under voltage protection (software hardware)	Vdc	≤32	
Output overvoltage protection (software hardware)	Vdc	≥105%	Locked,need to restart
Over-temperature protection (software)	℃	≥95	Outlet side radiator (test point)
Output short-circuit protection (software、hardware)	/	Yes	Self-recovery
Dynamic response	us	≤500	/
communication interruption	/	Yes	Communication interruption, Close output beyond 5S
Input phase loss,reverse phase protecetion (software、hardware)	/	Yes	Self-recovery

3 Working Environment

Item	Min	Typ	Max	Unit	Test condition
Working temperature	-20	25	45	℃	
Storage temperature	-40	25	70	℃	
Relative humidity	0	/	93	%	
Protection mode	/	IP20	/	/	
Pollution level	/	Ⅱ	/	/	
Cooling method	/	Forced Air cooling	/	/	

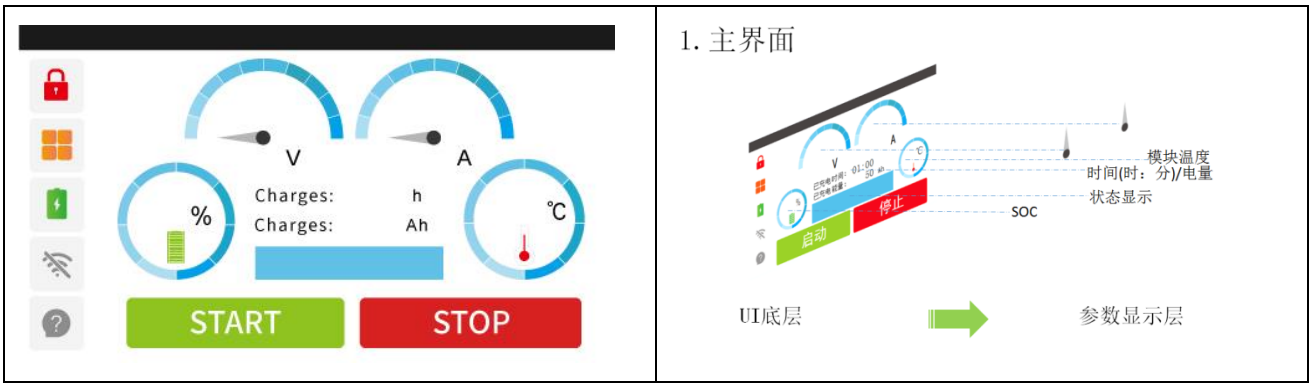
4 EMC & Safety

Item	Unit	Standard	Remark
CE	/	IEC61000_3_2 IEC61000_3_3 IEC61000_6_2 IEC61000_6_4	Please refer to relevant certification standards

5 Charger display status description and touch screen display operation interface description

The charger is equipped with a touch screen,which can monitor and operate the state of the charger.

5.1、**Display interface description:**

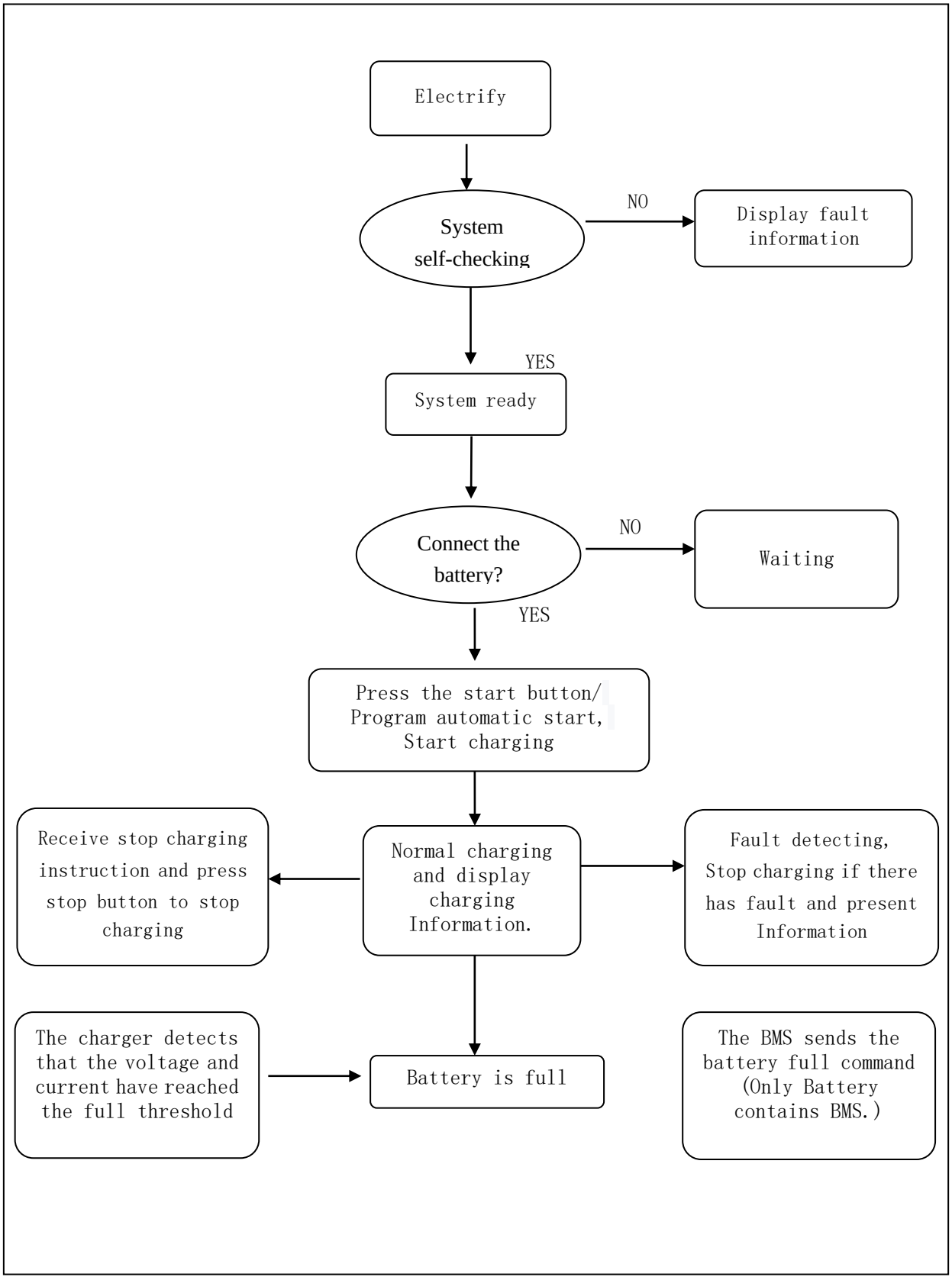


The above is the basic setting interface.For more detailed operation instructions,please refer to:Display UI Design.

5.2、State Description

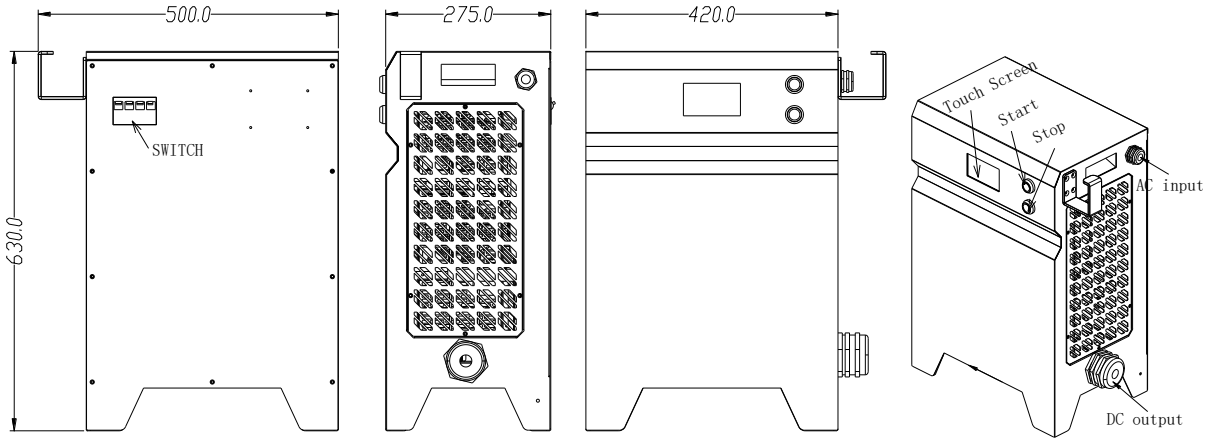
Charger touch screen status display	State Description：
Self-checking	Check the battery condition, whether charging is allowed, and whether the charger has faults itself
Ready	External environment normal, It can be charged normally
Charging	Charging
Stop charging	The battery does not meet the condition of full battery
Input abnormal	The charger’s input voltage is higher or lower than the preset value
Over voltage	Output voltage is higher than the predetermined value
Over current	Output current is higher than the predetermined value
failure of modules	Communication failure of charger modules
Modules over-temperature	The charger modules temperature is higher than the setpoint
Output short circuit	Charger module output short circuit
Fan fault	Module fan working abnormal
Please connect the battery	No battery voltage detected and Communication not established
Charging completed	SOC is equal to 100% or the charging voltage reaches 98% of the set voltage, and BMS sends the instruction to stop charging
No battery voltage	Have communication connection, But the charger did not detect the voltage of the battery
Battery over-voltage	BMS detects battery abnormality and sends overvoltage command
Battery overcurrent	BMS detects battery abnormality and sends overcurrent instruction
BMS communication failure	Communication between the BMS and the charger failed
Battery Over temperature	BMS detected battery abnormality and issued over temperature command
Phase sequence failure	Detected charger input phase loss/inverted fault
Remark: 1.The above fault codes should do cooperation with BMS’send out,then can show.If the battery without BMS,some fault codes won’t be displayed. Support for customer customization.	

6 Charging process



7 Charger structure(mm)

Structure size:



Structure size（Unit: mm）:

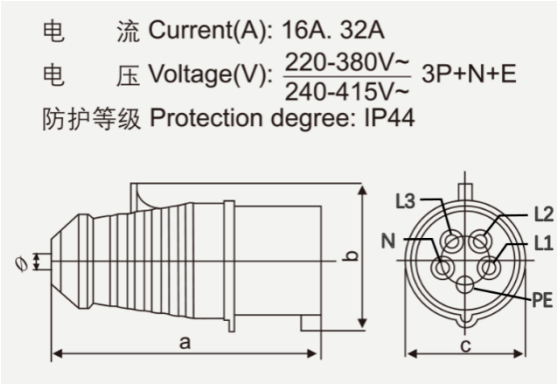
L420*W275*H630（Without mounting ears,allowable tolerance±5mm）

L500*W275*H630（With mounting ears,allowable tolerance±5mm）

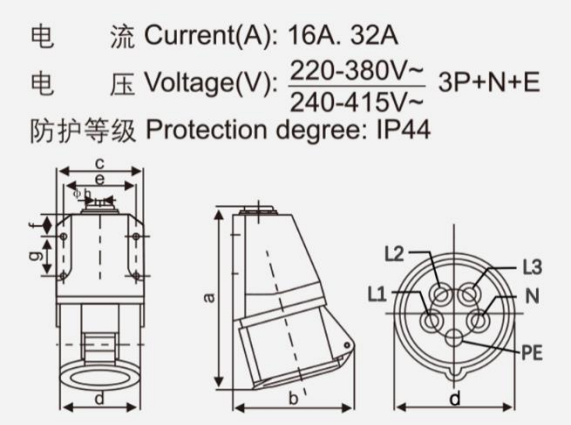
Input Cable and connector spec.:

phase	Spec	Remark
L1	2.5mm²	brown
L2	2.5mm²	black
L3	2.5mm²	gray
N	2.5mm²	blue
PE	2.5mm²	Green and yellow

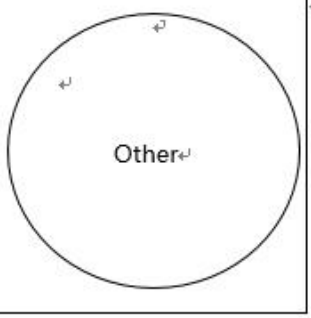
Plug model		SF-025
Ground position		6h
Rated current		32A
Pole number		5 pole
Size （mm）	a	143
	b	84
	c	70
	φ	8



Socket model		SF-125
Ground position		6h
Rated current		32A
Pole number		5 pole
Size (mm)	a	153
	b	107
	c	71
	d	70
	e	57
	f	20
	g	32.5
	h	6.5

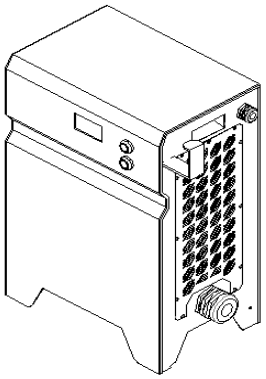


Output Cable spec.:

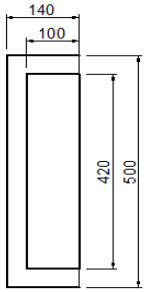
Anderson	DIN	Charger gun	Other
			

8 Packaging

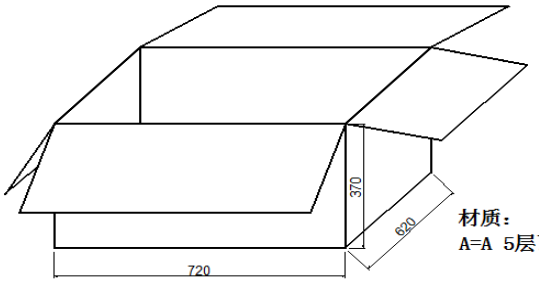
Pearl cotton,Carton



充电机



珍珠棉*4PCS



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A=A 5层瓦楞纸

9 Appendix