



JIANGMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO., LTD.

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SPECIFICATION

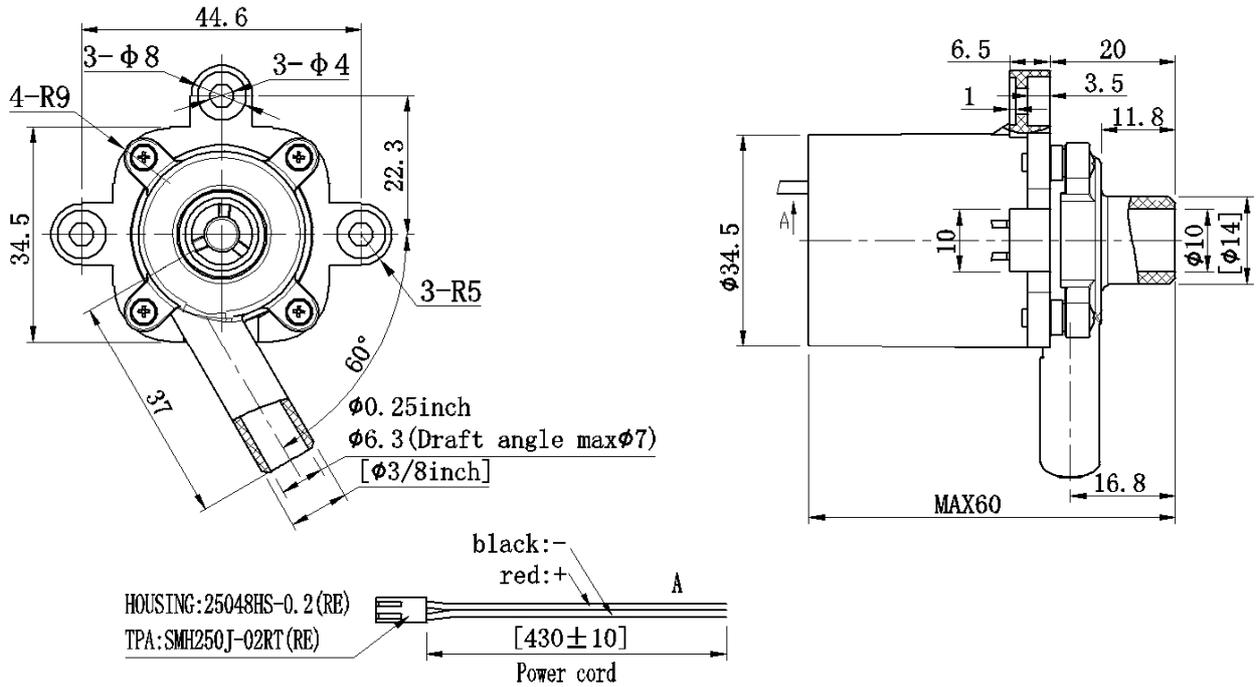
I. Scope of Application :

This specification applies in model ZL3015-9010007 BLDC Circulating Pump.

II. General Specification :

Item	Spec.	Item	Spec.
Product Type	BLDC	Product model	ZL3015-9010007
Rated Voltage	24V _{DC}	Number of Poles	4 poles
Phases	3 phases	Hall sensor	without
Connecting Type	Type Y	Working type	Continuous
Insulation Class	Class B	Defense grade	IP54

III. Outer dimension :



IV. Working condition :

Item	Unit	Scope	Remarks
Rated voltage	V	24Vdc	_____
Rated frequency	Hz	_____	_____
Room temperature	°C	0~60	_____
Room humidity	%	30~90	_____

V. Electrical Characteristics :

Assessment Item	Specification Value	Measured standing value
Rated voltage(V)	24Vdc	24Vdc
Rated frequency (HZ)	_____	_____
Coil resistance (Ω,25°C)	45±10 %	43.2
Counter-EMF (V, at 3300rpm, 25 °C)	_____	_____
Temp. rising (K,25°C water)	60K MAX	38.62

Empty loading Characteristic	Current (A)	0.1A MAX	0.08
	Rev (RPM)	8000±10 %	7900
	Starting voltage (V)	_____	_____
Loading Characteristic	Flow head(M)	0	0
	frequency (W)	5W MAX	4.8
	current (A)	0.25 MAX	0.2
	Rev (RPM)	5000±10 %	5070
	Flow rate (L/min 1m)	4.5L MIN	5.2
	Starting voltage (V)	12V	7.5V
Noise	water vapor mixing(d B)	_____	_____
	Full water running (d B)	40dB MAX	32
Vibration	water vapor mixing (mm/s)	_____	_____
	Full water running (mm/s)	0.6 MAX	0.182
Insulation Property	Insulation resistance (M Ω)	100 MIN.	500
	withstand voltage (AC 600V 1 Sec)	Leakage current 5mA MAX.	0.3
	5000HR MIN.	_____	_____
Life test (on/off running)			

VII. Test method :

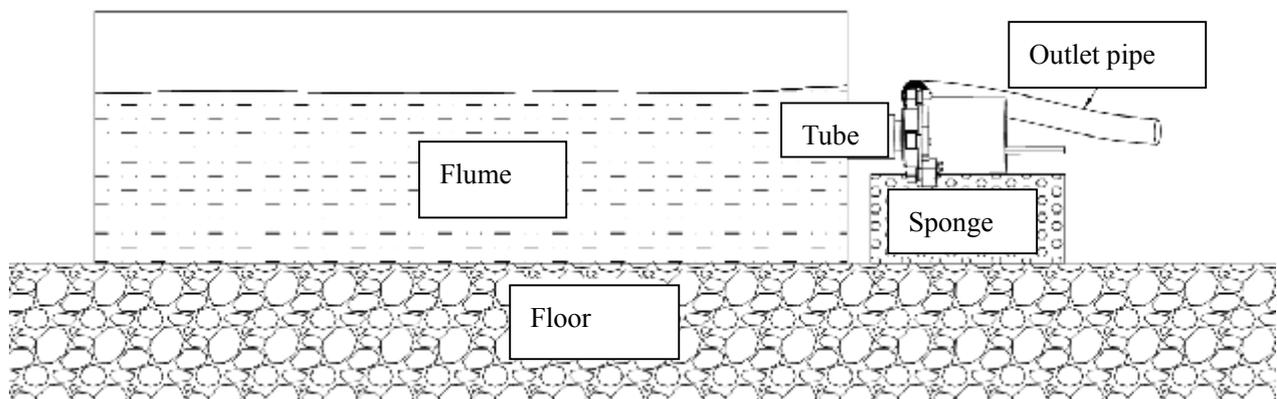
1、Temp. rising test :

1.1. Room Temp. 25°C ;

1.2. Running at rated voltage, frequency and flow head ;

1.3. Running for 2 hrs, then use resistance method to calculate temperature rising.

As below :



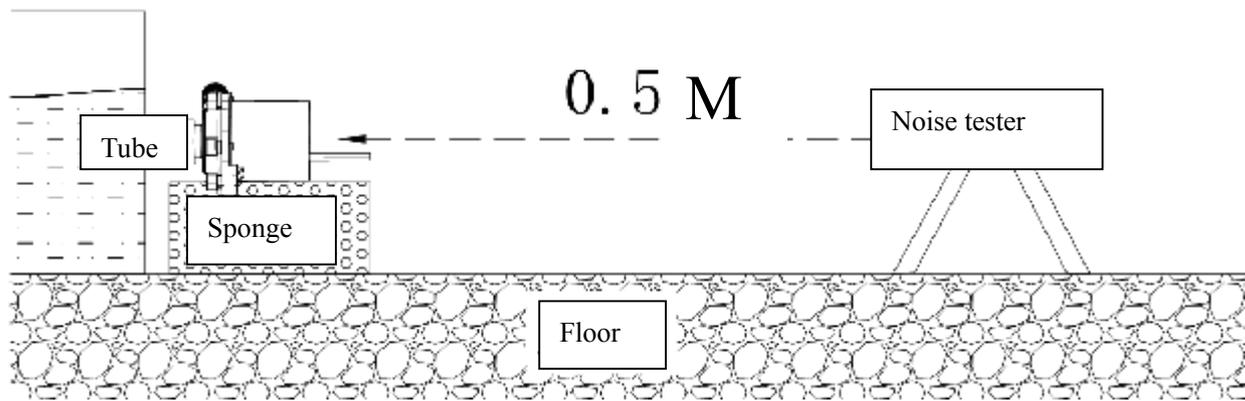
2、Noise test :

2.1. Room noise: 35 dB

2.2. Test at front, left and right position, and then calculate the average value;

2.3. Test the noise value under water vapor mixing and full water running state;

As below :

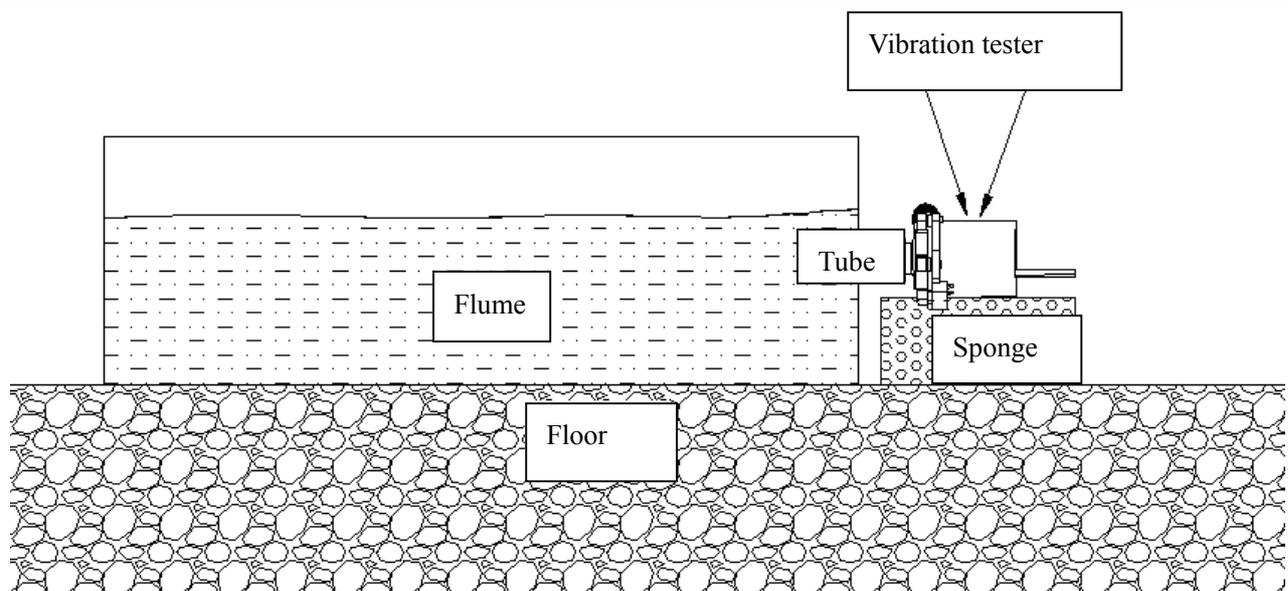


3、Vibration test :

3.1. Probe on the pump body ;

3.2. Test under water vapor mixing and rated rotational speed.

As below :

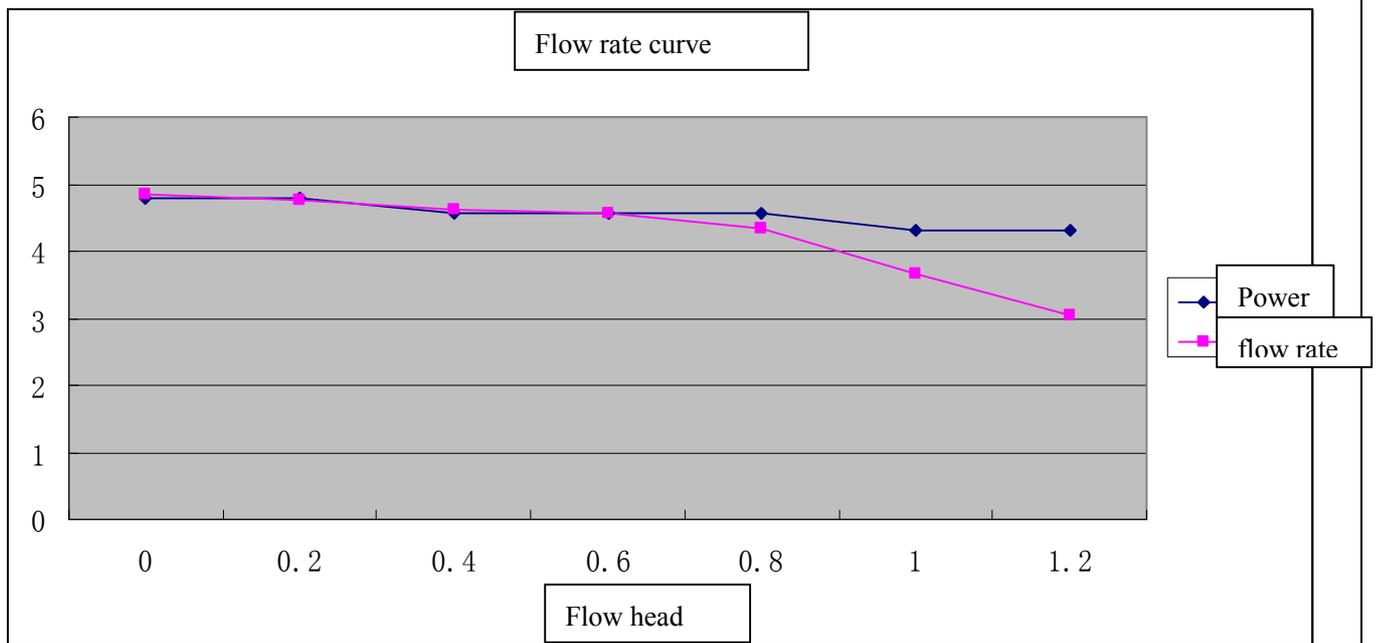
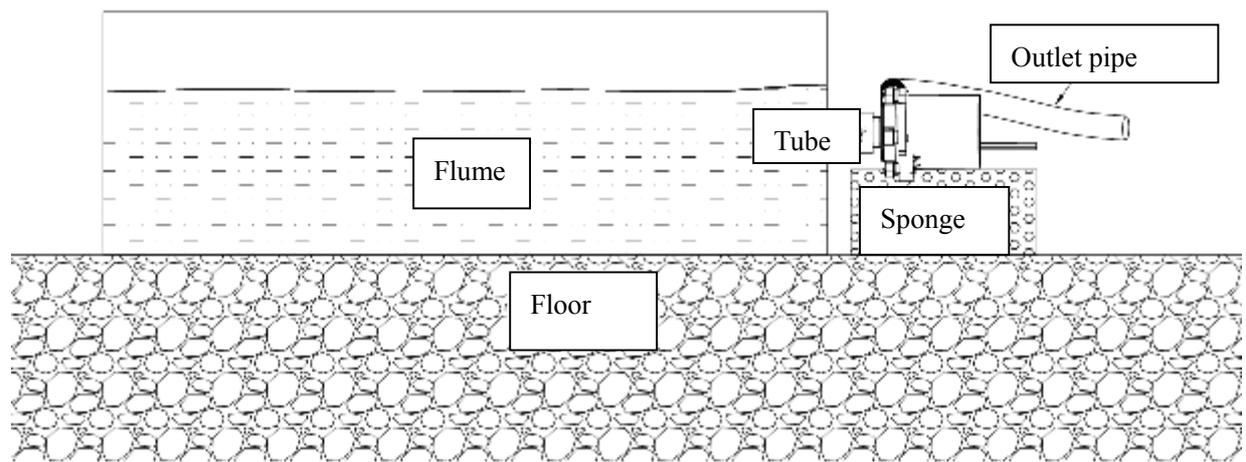


4. Flow rate test

4.1. Water temperature 25°C , room temperature 25°C ;

4.2. Running the motor first, open the valve, counting time for 1 min when water drain out ;

As below:



VII. Life test :

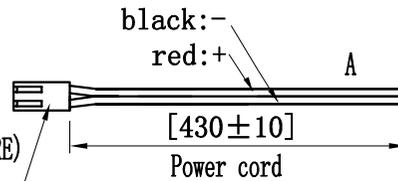
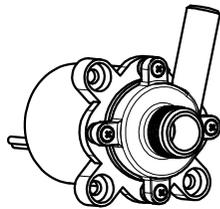
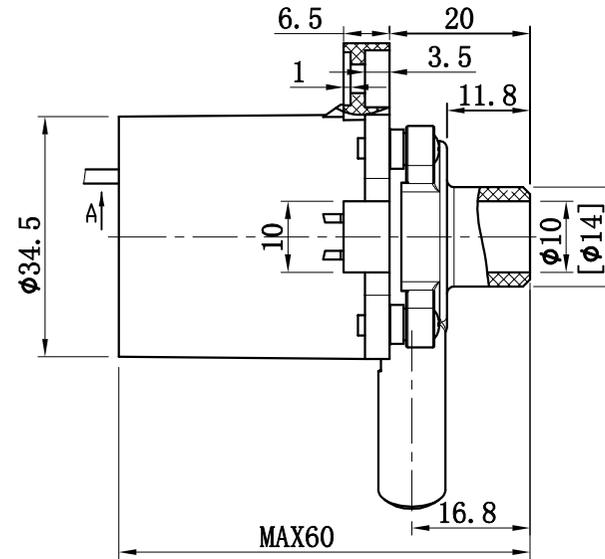
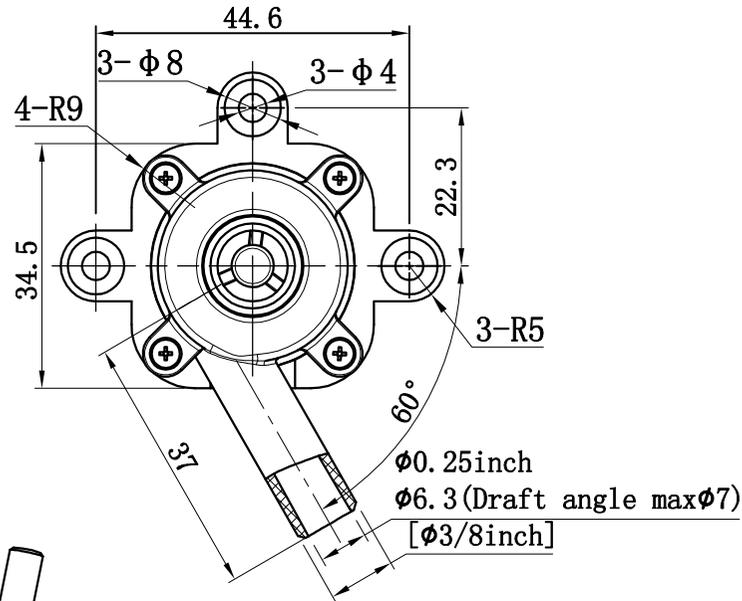
1、 Test conditions :

1.1. Room temperature is 60°C , humidity95% , working voltage is 26V ,continuous working type.

Running under rated loading state

1.2. Cycle is 136HR.

RELEASING THIS DRAWING WITHOUT PERMISSION OF IDEAR-HANYU ELECTRICAL SHOULD BE ACCUSED ACCORDING TO LAWS AND COMPANY RULES.



HOUSING: 25048HS-0.2 (RE)
TPA: SMH250J-02RT (RE)

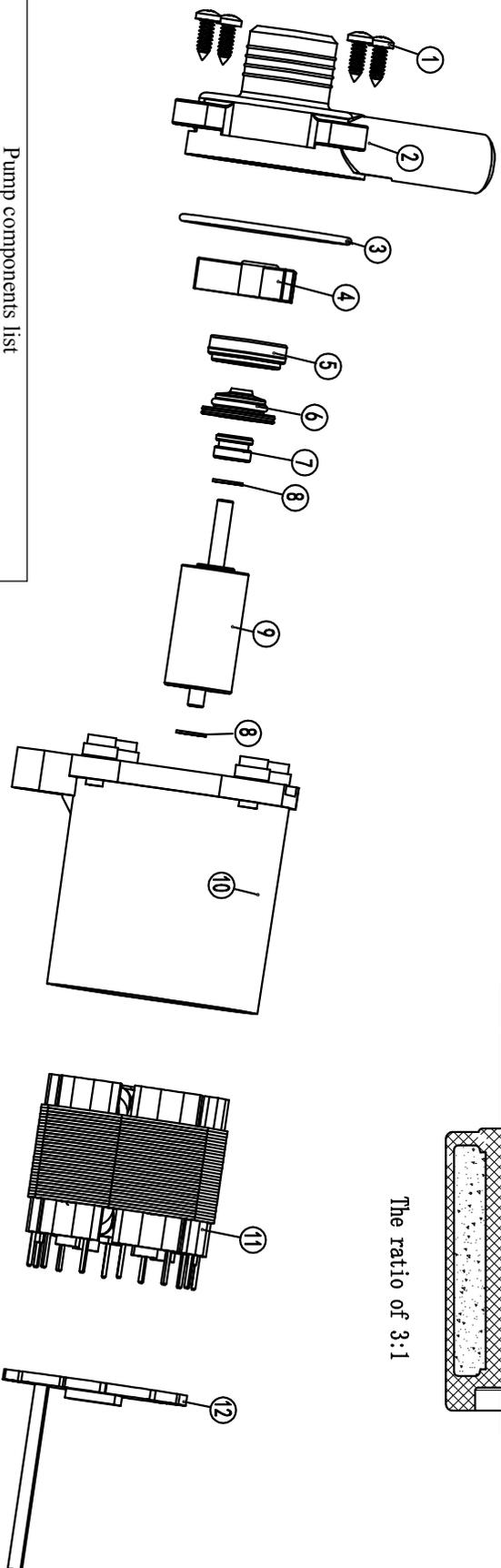
Technical requirements:

1. Rated voltage 24V_{DC} 0.25A;
2. Flow head: 0 m, flow rate ≥ 4.5L/min;
3. Insulation class: B;
4. Product accords with ROHS requirement.

Material linear dimension tolerance (L)		Angle dimension tolerance (L), According to GB/T1804-2000 medium M level control.		Material:	Parts name: BLDC Circulating PUMP	
L < 6	± 0.1	L < 10	± 1°		P/N:	
6 ≤ L < 30	± 0.2	10 ≤ L < 50	± 30'	Proportion	Weight (g)	
30 ≤ L < 120	± 0.3	50 ≤ L < 120	± 20'			Edition:
120 ≤ L < 400	± 0.5	120 ≤ L < 400	± 10'			
400 ≤ L < 1000	± 0.8	400 ≤	± 5'			
1000 ≤ L	± 1.2					
Design	李昌建	2012/11/3	Standardization		JIANMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO., LTD	
Drawing	李昌建	2012/11/3	Technology			
Audit	王红标	2012/11/3	Approval			

Note: Figure that are involved in the material Must comply with Idear, han yu company The latest Controlled version (The environmental directives instruction) requirements.

RELEASING THIS DRAWING WITHOUT PERMISSION OF IDEAR-HANYU ELECTRICAL SHOULD BE ACCUSED ACCORDING TO LAWS AND COMPANY RULES.



Pump components list

NO.	PARTNAME	MATERIAL	
1	ST2.2 Self tapping screw	SUS304	
2	pump lid	POM	
3	seal ring	NBR	
4	impeller	POM	
5	bearing cover	POM	
6	rubber bearing cover	NBR	
7	front bearing	POM	
8	gasket	Plumbaginous nylon	
9	rotor	NdfcB+POM+SUS304	Food grade lubricants
10	pump body	POM	seal with
11	stator	Silicon steel+PA66+Copper wire	Polyurethane
12	Control drive	PCB+UL power cord	

Material linear dimension tolerance (L)	Angle dimension tolerance (L), according to GB/T1804-2000 medium M level control.	Parts name:BLDC Circulating PUMP
L<6	±0.1	Parts specifications:
6≤L<30	±0.2	
30≤L<120	±0.3	Drawing No: 9010007
120≤L<400	±0.5	Proportion
400≤L<1000	±0.8	Weight (g)
1000≤L	±1.2	Edition:



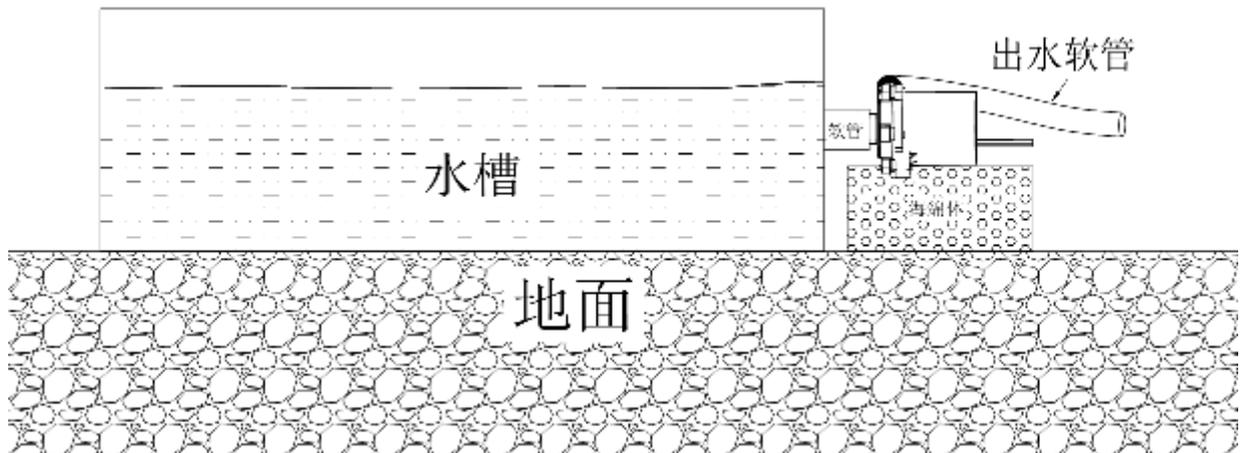
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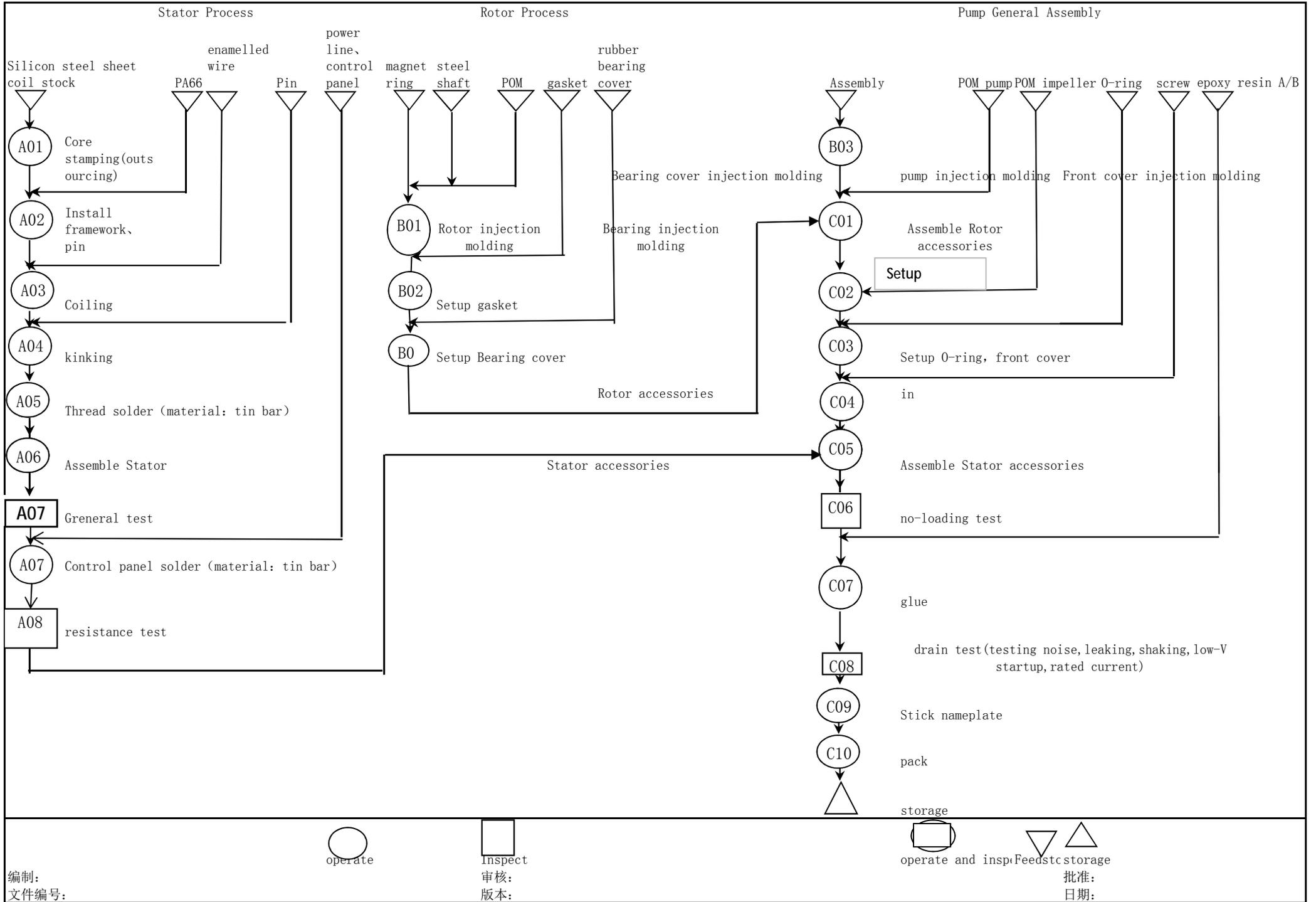
JIANMEN IDEAR-HANYU
ELECTRICAL JOINT-STOCK CO.,LTD

	TEST CERTIFICATE 测试证书 Synchronous Pump 直流循环水泵 ZL3015-9010007 Customer Part No 客户产品编码:	Order No.: 订单号码 Test Person 测试人员: pengliang Reviewed by 审核: Date 日期: 2012-12-8
	Customer 客户: LG	

Item#	Technical Data 技术参数	Set Value 设定值	Measured Value 测量值
1.	Electrical ratings (voltage/ frequency) 额定电压及频率	DC24V	DC24V
2.	Core stack thickness 铁芯厚度	15 mm	15 mm
3.	Duty type 工作方式	Continuous	Continuous
4.	Insulation class 绝缘等级	B	B
5.	Number of poles 极数	4	4
6.	Ohmic resistance 线圈电阻	45 ± 10 %	42.12 ohm
7.	Input power 额定输入功率	5W	4.08W
8.	Leakage current 泄漏电流	≤ 0.25 mA	< 0.01 mA
9.	Turn to turn endure voltage test/duration 匝间耐压/时间	600 V/ 1 second	Coil no breakdown, short-circuit, inter-turns discharge 线圈无短路、击穿、放电
10.	Electrical strength test/duration 电气强度测试/时间	600V/1 second	No breakdown 无击穿
11.	Flow rate @ 0m head height.0 米扬程时排水量	4.5	5.35ℓ/min
12.	Safe start voltage 低压起动电压	≤ 12V	≤ 12V
13.	Temperature rise 温升	≤ 60K	38.5K
14.	Impeller size 风叶直径	ø20	ø20
15.	No-load noise level (the distance between pump and noise test machine is 0.5m) 空载噪音(排水泵与测试仪器距离为0.5m)	≤ 40dB(A)	In the scope

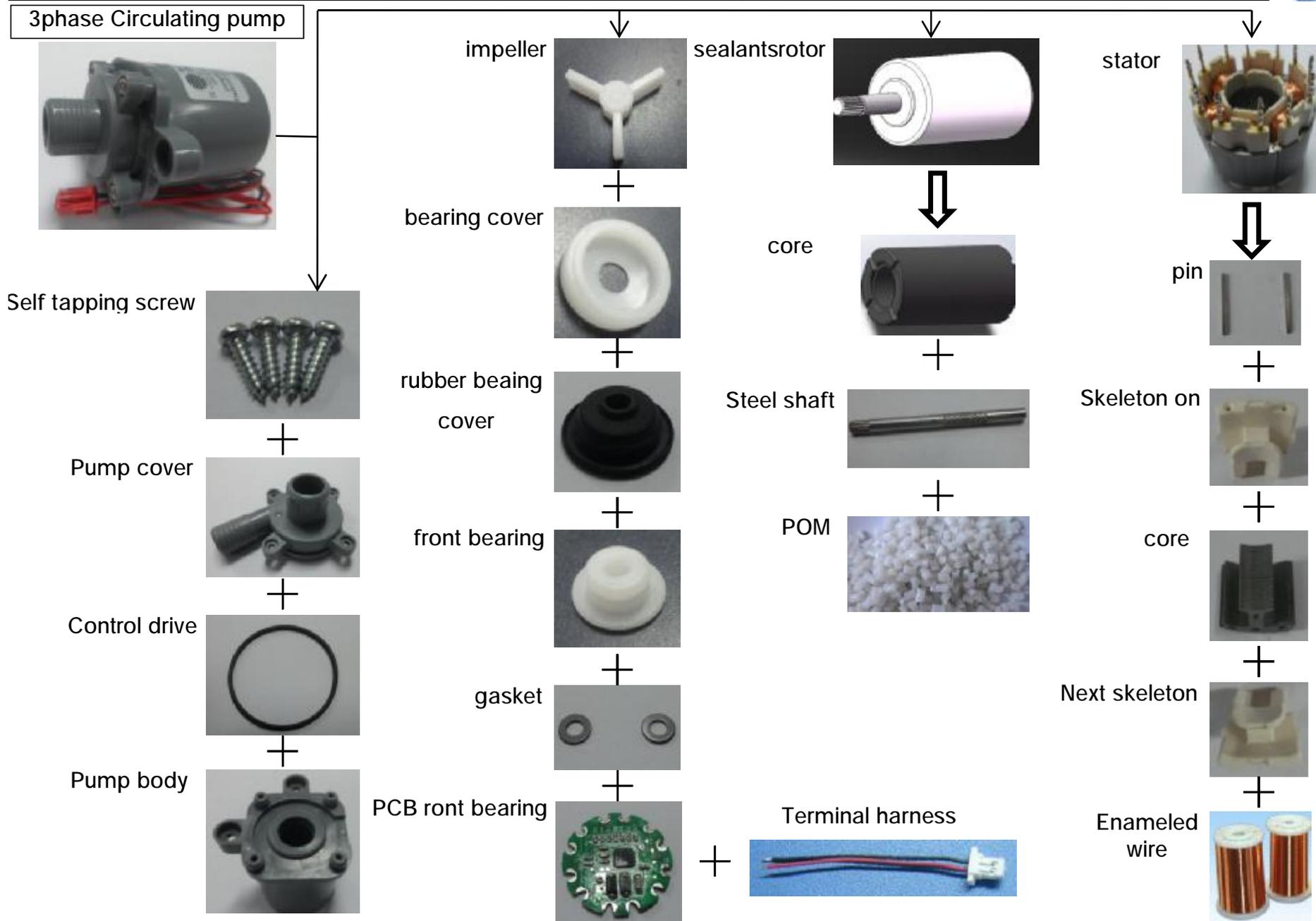


Three Phase Water Circulating Pump Process Map



부품구성전개도 _ ZL3015 Assembly (p/no.)

[협력사 : HanYu





BLDC circulating pump

[Hanyu Model:ZL3015-9010007]

Assembly daily inspection

Make : Anna Huang
Date: May.17.2013

(Q_Map) _ LG BLDC pump assembly [ZL3015]

LG BLDC pump Assembly



bearing



contact pin



rubber bearing cover



stator core



press cover



upper bobbin



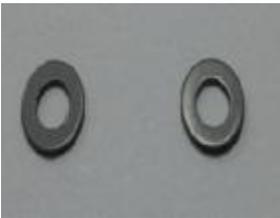
impeller



lower bobbin



black lead washer



coiling



control panel



wire bonding



Check List _ BLDC Pump Assembly



<p>Function</p> <p>water circulating pump</p>	<p>부품 전개</p> <p>Water circulating pump assembly</p> 
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<p>자주검사Point</p>		
<p>공정 IQC공정 : 버튼 조작감</p> <ul style="list-style-type: none"> 1.O-ring diameter 2.O-ring hardness 3. Pulsation of Magnetic Core 4. Pinhole 5. Normal Magnetic Strength 6.Control panel property 	<p>공정 PQC공정 : Test Mode</p> <ul style="list-style-type: none"> 1.Washer outside diameter 2.Axletree seat outside diameter 3.Axletree inside diameter 4.Plastic axletree cover outside diameter 5.Impeller inside diameter 6.Truns of coil winding 7.Tension of coil winding 8.Stator thickness. 	<p>공정 OQC공정 : 인쇄 박리</p> <ul style="list-style-type: none"> 1.Outlet outer diameter. 2.Infall outer diameter. 3.Flow rate

<p>불량 이력</p>							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

Check List _BLDC Pump Assembly



<p>Function</p> <p>Pump cover connected with pump body</p>	<p>부품 전개</p> <p>Part name : pump cover</p>	
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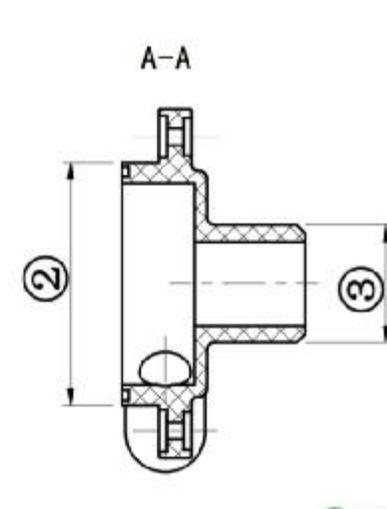
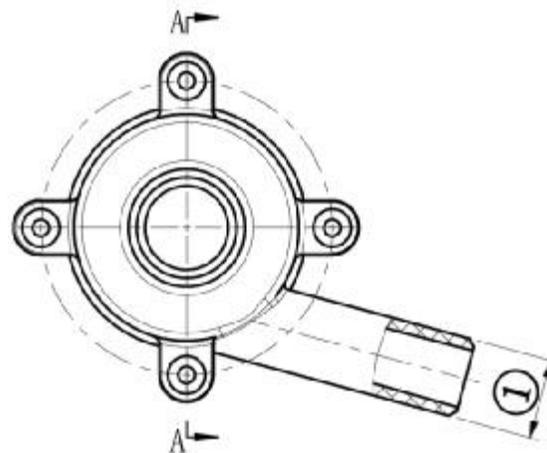
자주검사Point

<p>공정 IQC공정 : 버튼 조작감</p>	<p>공정 PQC공정 : Test Mode</p> <p style="text-align: center;">Assembly size</p>	<p>공정 OQC공정 : 인쇄 박리</p>
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불량 이력							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

Routine inspection guide(pump cover)

Inspection item	Inspection instrument	Inspection spec/method	Check basis	frequency
appearance	visual	product appearance is smooth, without impurities, flash.	sample	2model/4H
	visual	Product appearance no bubble, shrink , deformation welding defects.		
	visual	The product structure is complete, there is no lack of glue, glue a model phenomenon		
	visual	Products into the glue a requirement level off, can't influence assembly.		
Size	Data display caliper	① $\Phi 9.53 \pm 0.08 \text{mm}$	drawing	2model/4H: ①
	Video projector	② $\Phi 28.9 (+0.05 / -0.05) \text{mm}$		First sample ①②
	Data display caliper	③ $\Phi 14 \pm 0.1 \text{mm}$		



Check List _ BLDC Pump Assembly



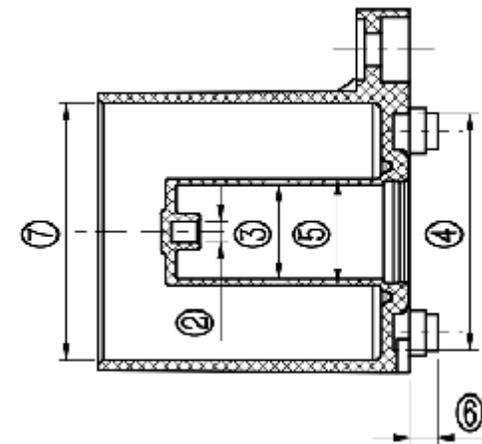
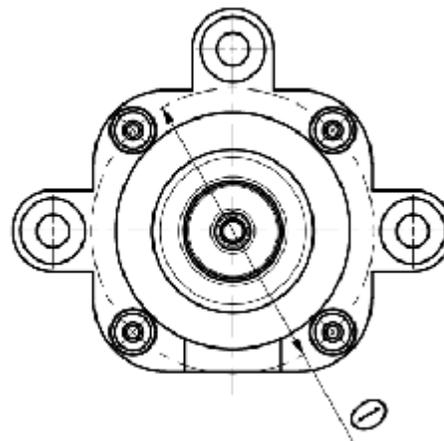
<p>Function</p> <p>Pump body which supports the rotor and stat or</p>	<p>부품 전개</p> <p>Part name : pump body</p> <div style="text-align: center;">  </div>
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자주검사Point		
공정 IQC공정 : 버튼 조작감	공정 PQC공정 : Test Mode	공정 OQC공정 : 인쇄 박리
	Assembly size	

불량 이력							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

Routine inspection guide(pump body)

Inspection item	Inspection instrument	Inspection spec/method	Check basis	frequency
appearance	visual	product appearance is smooth, without impurities, flash.	sample	2model/4H
	visual	Product appearance no bubble, shrink , deformation welding defects.		
	visual	The product structure is complete, there is no lack of glue, glue a model phenomenon		
	visual	Products into the glue a requirement level off, can't influence assembly.		
size	Video projector	① $\Phi 35 \pm 0.05\text{mm}$	drawing	First sample: ①-⑦
	Data display caliper	② $\Phi 2.5(+0.02/+0)\text{mm}$		2Model/4h: ②-⑦
		③ $\Phi 11.5(+0.05/0)\text{mm}$		
		④ $\Phi 29(+0.05/0)\text{mm}$		
		⑤ $\Phi 13(0/-0.1)\text{mm}$		
		⑥ $3.5 \pm 0.1\text{mm}$		
		⑦ $\Phi 31.5(+0.1/0)\text{mm}$		



Check List _ BLDC Pump Assembly



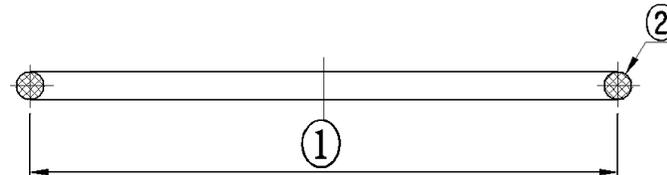
<p>Function</p> <p>O-ring is connected with pump body and pump cover, which has the sealing effect and prevent the water seepage .</p>	<p>부품 전개</p> <p>Part name :O-ring</p> <div style="text-align: center;">  </div>
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자주검사Point		
<p>공정 IQC공정 : 버튼 조작감</p> <p>1.O-ring hardness 2.O-ring diameter</p>	<p>공정 PQC공정 : Test Mode</p>	<p>공정 OQC공정 : 인쇄 박리</p>

불량 이력							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

Routine inspection guide(O-ring)

Process/parts Name	Equipment	CTQ's,CTF's Projects		Importance	Control Process			
		NO	Products		Process	Requirement	Control means	Period
Big O-RING		1	Appearance		Burr \leq 0.1mm No pastern	Visual Check	AQL1.5	Incoming Inspection form
		2	Material		NBR	Compare to Spec.		
	EDX Detector	3	ROHS		Complaince to RoHs standard of Hanyu	EDX Detector	AQL10	
	sclerometer	4	Hardeness		45~55°	sclerometer	AQL6.5	
	Image meter /callipers	5	Dimension		Inner Dia : Φ 26.6 (+0.1 , -0.1) mm	Image meter /callipers	AQL1.0	
				Wire Dia : Φ 1.10 \pm 0.05mm				



Check List _ BLDC Pump Assembly



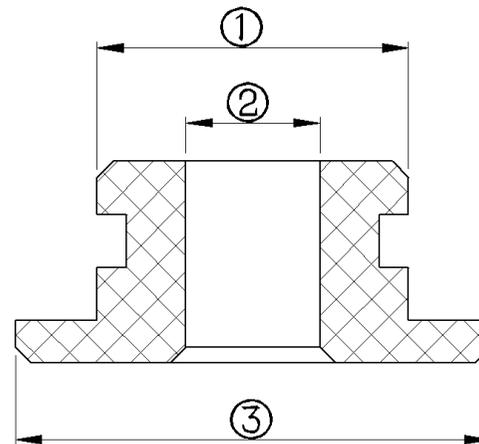
<p>Function</p> <p>Support the rotor, and guarantee the rotor can be turn in the axletree.</p>	<p>부품 전개</p> <p>Part name : bearing</p> <div style="text-align: center;">  </div>
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자주검사Point		
공정 IQC공정 : 버튼 조작감	공정 PQC공정 : Test Mode	공정 OQC공정 : 인쇄 박리
	1.Bearing inside diameter	

불량 이력							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

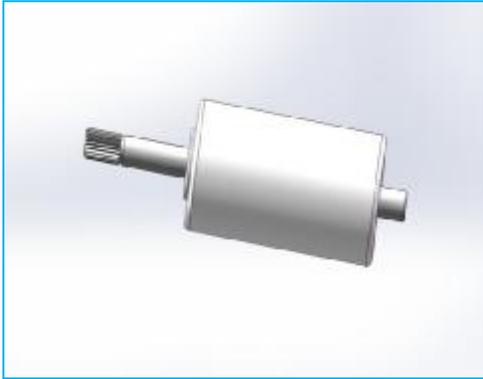
Routine inspection guide(bearing)

Inspection item	Inspection instrument	Inspection spec/method	Check basis	frequency
appearance	visual	product appearance is smooth, without impurities, flash.	sample	2model/2H
	visual	Product appearance no bubble, shrink , deformation welding defects.		
	visual	The product structure is complete, there is no lack of glue, glue a model phenomenon		
	visual	Products into the glue a requirement level off, can't influence assembly.		
Size	Data display caliper	① $\Phi 5.9 \pm 0.05$ mm	drawing	First sample: ①-③
		② $\Phi 2.5(+0.02/+0)$ mm		
		③ $\Phi 9 \pm 0.1$ mm		2model/4h: ①-③



Check List _ BLDC Pump Assembly



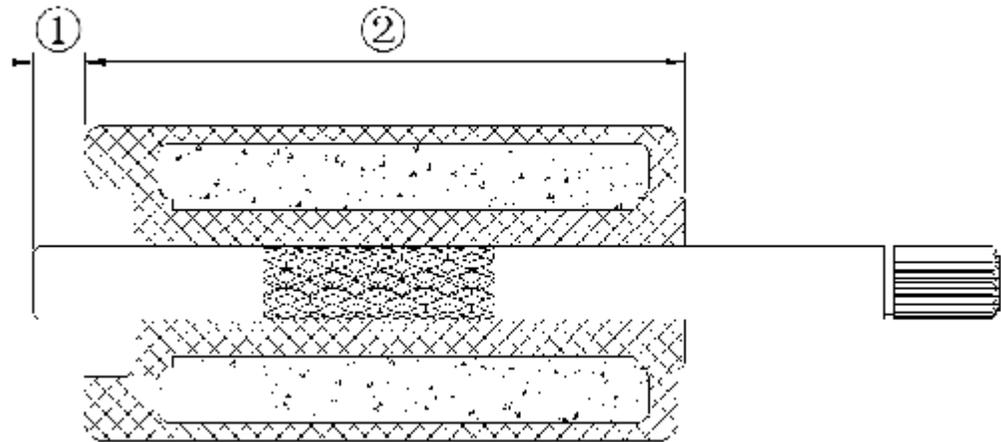
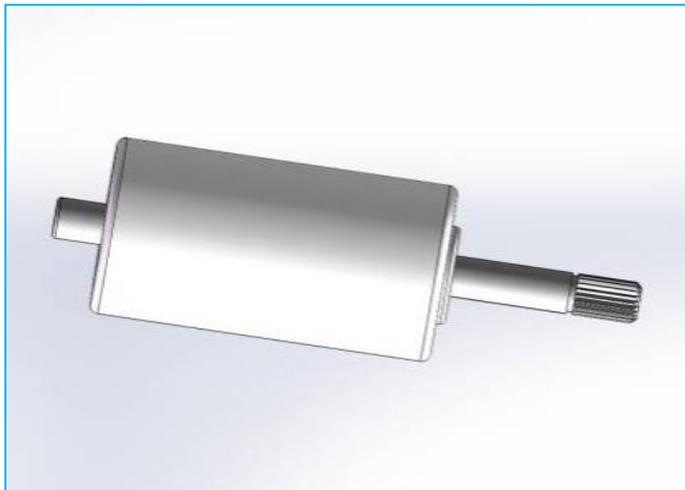
<p>Function</p> <p>Supply magnetic field. Impeller working under magnetic field and winding effect.</p>	<p>부품 전개</p> <p>Part name : Magnetic Core</p> <div style="text-align: center;">  </div>
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자주검사Point		
<p>공정 IQC공정 : 버튼 조작감</p> <p>1.Pulsation of Magnetic Core 2.flux</p>	<p>공정 PQC공정 : Test Mode</p> <p>1.flux</p>	<p>공정 OQC공정 : 인쇄 박리</p>

불량 이력							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

Routine inspection guide(magnetic core)

Inspection item	Inspection instrument	Inspection spec/method	Check basis	frequency
appearance	visual	product appearance is smooth, without impurities, flash.	sample	2model/2H
	visual	Product appearance no bubble, shrink , deformation welding defects.		
	visual	The product structure is complete, there is no lack of glue, glue a model phenomenon		
Size	Data display caliper	① 2.8±0.15 mm	drawing	First sample: ①②
		② 20.8(+0.2/-0.2) mm		
	Teslameter	Normal Magnetic Strength≥125mT		



Check List _ BLDC Pump Assembly



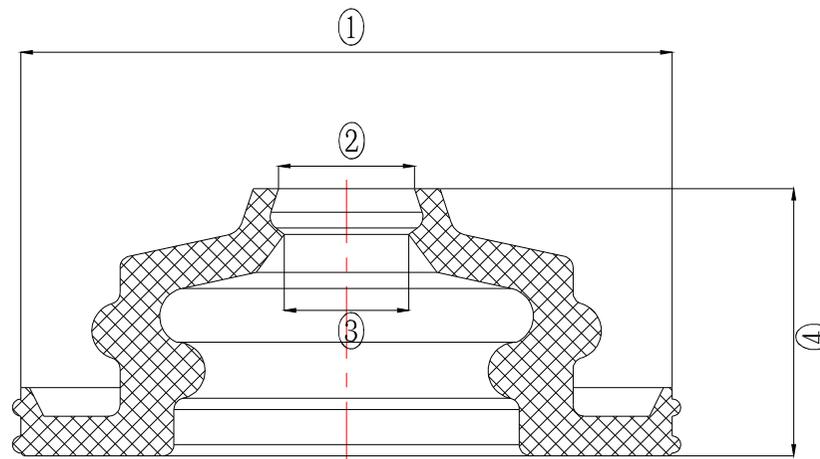
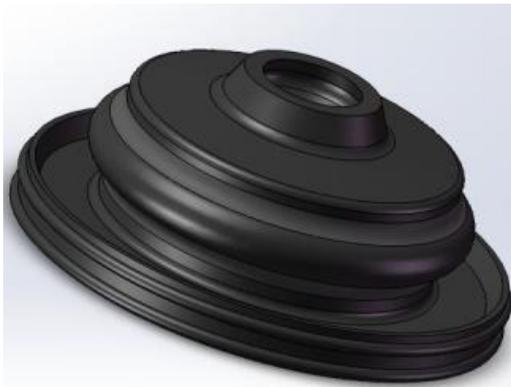
<p>Function</p> <p>support the bearing</p>	<p>부품 전개</p> <p>Part name : Rubber bearing cover</p>	
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자주검사Point		
<p>공정 IQC공정 : 버튼 조작감</p>	<p>공정 PQC공정 : Test Mode</p>	<p>공정 OQC공정 : 인쇄 박리</p>

불량 이력							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

Routine inspection guide(rubber bearing cover)

Process/ parts Name	Equipme nt	CTQ's,CTF's Projects		Importance	Control Process			
		NO	Products		Process	Requirement	Control means	Period
rubber bearing cover		1	Appearance		Burr \leq 0.1mm No pastern	Visual Check	AQL1.5	Incomin g Inspectio n form
		2	Material		NBR	Compare to Spec.		
	EDX Detector	3	ROHS		Compliance to RoHs standard of Hanyu	EDX Detector	AQL10	
	scleromet er	4	Hardenes s		45~55°	scleromet er	AQL6.5	
	Image meter /callipers	5	Dimensio n		(1) 11.3~11.7 mm	Image meter /callipers	AQL4.0	
				(2) 2..32~2.48 mm				
				(3) 2.12~2.28 mm				
				(4) 4.60~4.80 mm				



Check List _BLDC Pump Assembly



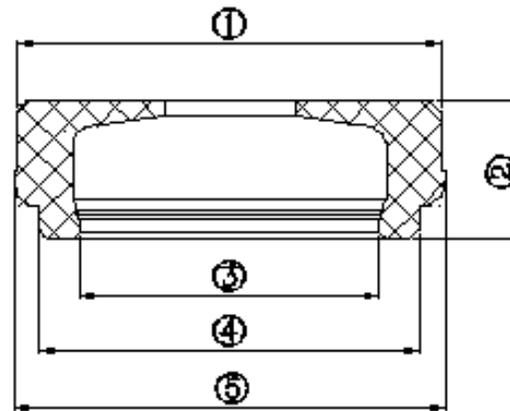
<p>Function</p> <p>Connect the axletree and impeller.</p>	<p>부품 전개</p> <p>Part name : press cover</p>	
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자주검사Point		
<p>공정 IQC공정 : 버튼 조작감</p>	<p>공정 PQC공정 : Test Mode</p> <p>1..press cover outside diameter</p>	<p>공정 OQC공정 : 인쇄 박리</p>

불량 이력							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

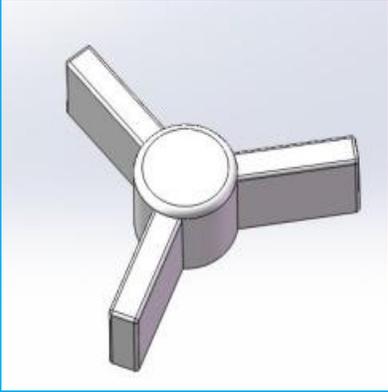
Routine inspection guide(press cover)

Inspection instrument	Inspection spec/method	Check basis	frequency
visual	product appearance is smooth, without impurities, flash.	sample	2model/4H
visual	Product appearance no bubble, shrink , deformation welding defects.		
visual	The product structure is complete, there is no lack of glue, glue a model phenomenon		
visual	Products into the glue a requirement level off, can't influence assembly.		
Data display caliper	① $\Phi 12.3$ (0/-0.1) mm	drawing	First sample: ①-⑤
	②4 (+0.1/0)mm		
	③ $\Phi 8.7 \pm 0.1$ mm		2model/4h: ①-⑤
	④ $\Phi 11$ (0/-0.1)mm		
	⑤ $\Phi 12.5 \pm 0.05$ mm		



Check List _ BLDC Pump Assembly



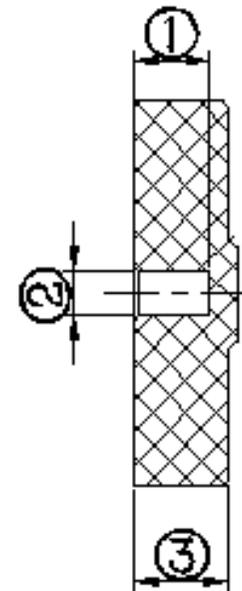
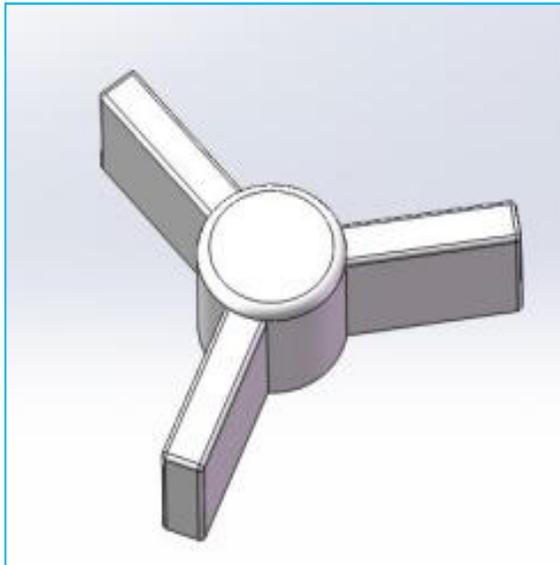
<p>Function</p> <p>Drive water to drain.</p>	<p>부품 전개</p> <p>Part name : Impeller</p> <div style="text-align: center;">  </div>
---	--

자주검사Point		
<p>공정 IQC공정 : 버튼 조작감</p>	<p>공정 PQC공정 : Test Mode</p> <p>Impeller inside diameter</p>	<p>공정 OQC공정 : 인쇄 박리</p>

불량 이력							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

Routine inspection guide(impeller)

Inspection item	Inspection instrument	Inspection spec/method	Check basis	frequency
appearance	visual	product appearance is smooth, without impurities, flash.	sample	2model/4H
	visual	Product appearance no bubble, shrink , deformation welding defects.		
	visual	The product structure is complete, there is no lack of glue, glue a model phenomenon		
	visual	Products into the glue a requirement level off, can't influence assembly.		
size	Data display caliper	① $4\pm 0.1\text{mm}$	drawing	first sample : ①-③
	Data display caliper	② $\Phi 2.3 (0/-0.1) \text{ mm}$		4h/2model : ①-③
	Data display caliper	③ 5 mm		



Check List _ BLDC Pump Assembly



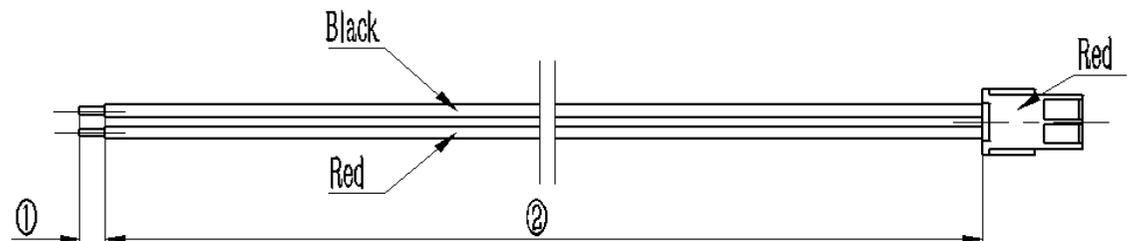
<p>Function</p> <p>Power connect</p>	<p>부품 전개</p> <p>Part name : lead wire</p> 
---	--

<p>자주검사Point</p>		
<p>공정 IQC공정 : 버튼 조작감</p> <p>Lead wire length dimension</p>	<p>공정 PQC공정 : Test Mode</p>	<p>공정 OQC공정 : 인쇄 박리</p>

<p>불량 이력</p>							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

Routine inspection guide(lead wire)

Process/parts Name	Equipment	CTQ's,CTF's Projects			Importance	Control Process			
		NO	Products	Process		Requirement	Control means	Period	Recording Doc
Wire bonding		1	Appearance			No Burr	Visual Check	AQL1.5	Incoming Inspection form
		2	Material			1、 lead wire Spec. : UL 1007 24AWG , 4、 buckle Spec. : 25048HS-0.2(RE) 5、 connector Spec. : SMH250J-02RT(RE)	Compare to Spec.		
	Image meter /callipers	3	Dimension(mm)			(1) 2.90~3.5MM	Image meter /callipers	AQL4.0	
						(2) 420~440MM			
	pull-out test	4	tensometer			wire and plug strength \geq 30N ;	tensometer	AQL4.0	
EDX Detector	5	ROHS			Compliance to ROHS standard of Hanyu	EDX Detector	Every incoming of the material		



Check List _ BLDC Pump Assembly



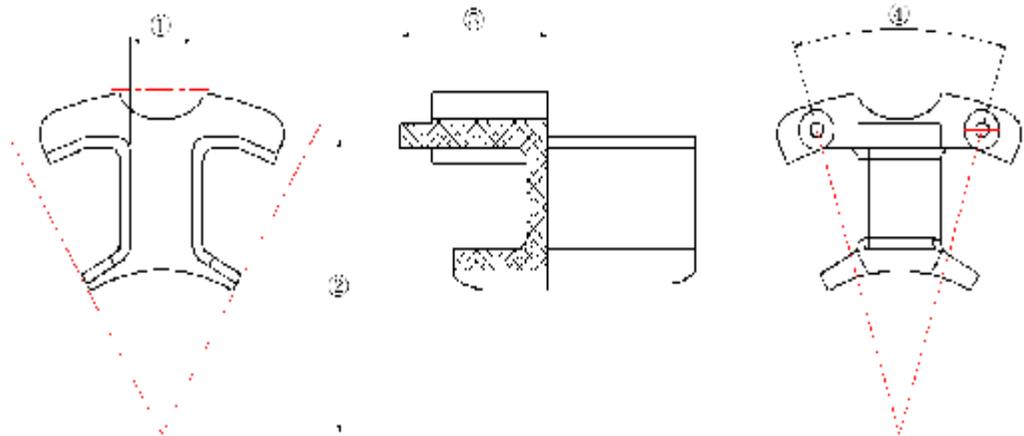
<p>Function</p> <p>Support and fix winding. It assemble with steel.</p>	<p>부품 전개</p> <p>Part name : upper Bobbin</p> 
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<p>자주검사Point</p>		
<p>공정 IQC공정 : 버튼 조작감</p>	<p>공정 PQC공정 : Test Mode</p> <p>size</p>	<p>공정 OQC공정 : 인쇄 박리</p>

<p>불량 이력</p>							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

Routine inspection guide (bobbin)

Inspection item	Inspection spec/ methodr	Check basis	frequency
visual	product appearance is smooth, without impurities, flash.	sample	2model/4H
visual	Product appearance no bubble, shrink , deformation welding defects.		
visual	The product structure is complete, there is no lack of glue, glue a model phenomenon.		
visual	Products into the glue a requirement level off, can't influence assembly.		
Video projector	①3(+0.05/+0.1)	drawing	First sample:①- ④
	②12.5 (0/-0.08)		2model/4H: ② ④
	③7.5 (+0.15/-0.15)		
Data display caliper	④34° ±1°		



Check List _ BLDC Pump Assembly



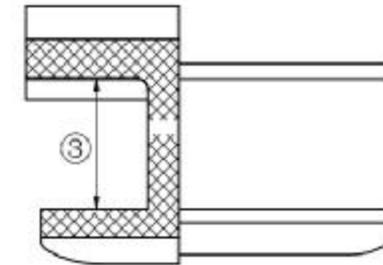
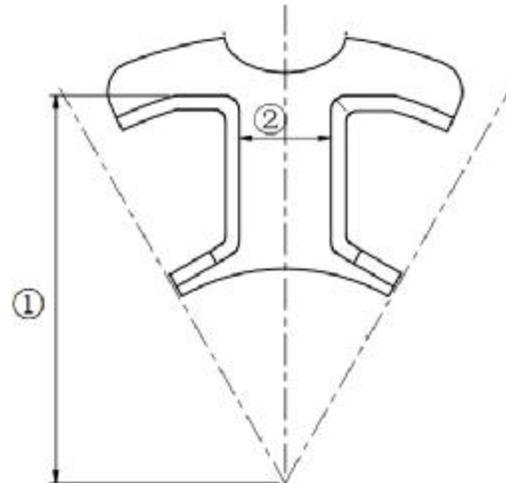
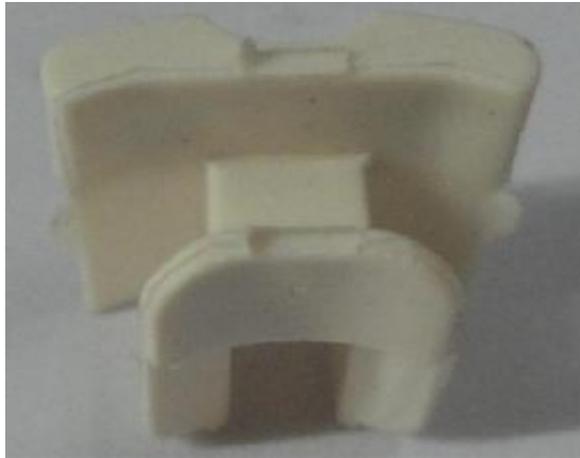
<p>Function</p> <p>Support and fix winding. It assemble with steel.</p>	<p>부품 전개</p> <p>Part name : lower Bobbin</p> 
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<p>자주검사Point</p>		
<p>공정 IQC공정 : 버튼 조작감</p>	<p>공정 PQC공정 : Test Mode</p> <p>size</p>	<p>공정 OQC공정 : 인쇄 박리</p>

불량 이력							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

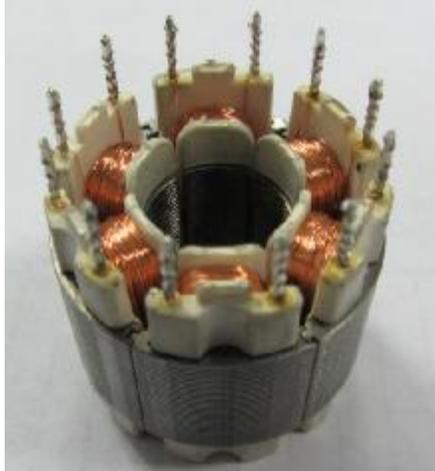
Routine inspection guide (bobbin)

Inspection item	Inspection instrument	Inspection spec/method	Check basis	frequency
appearance	visual	product appearance is smooth, without impurities, flash.	sample	2model/2H
	visual	Product appearance no bubble, shrink , deformation welding defects.		
	visual	The product structure is complete, there is no lack of glue, glue a model phenomenon		
	visual	Products into the glue a requirement level off, can't influence assembly.		
Size	Video projector	①12.5(0/-0.08)	drawing	First sample : ①-③
	Data display caliper	②3(+0.05/+0.1)		2model/4H : ②③
	Data display caliper	③4.21±0.1		



Check List _ BLDC Pump Assembly



<p>Function</p> <p>Lacquered wire use to make winding, While turn on power, it can cause alternating magnetic field. Then change electric energy to mechanical energy with rotor.</p>	<p>부품 전개</p> <p>Part name : coil winding</p>	
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<p>자주검사Point</p>		
<p>공정 IQC공정 : 버튼 조작감</p>	<p>공정 PQC공정 : Test Mode</p> <p>1.Turns 2. Tension</p>	<p>공정 OQC공정 : 인쇄 박리</p>

<p>불량 이력</p>							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

Check List _ BLDC Pump Assembly



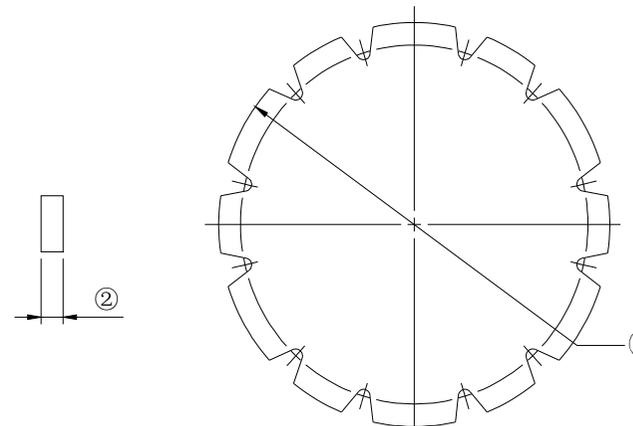
<p>Function</p> <p>Control winding temperature. While temperature raise abnormal high, it can turn off power to protect winding.</p>	<p>부품 전개</p> <p>Part name : control panel</p> 
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<p>자주검사Point</p>		
<p>공정 IQC공정 : 버튼 조작감</p> <p>Control panel property</p>	<p>공정 PQC공정 : Test Mode</p>	<p>공정 OQC공정 : 인쇄 박리</p>

<p>불량 이력</p>							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

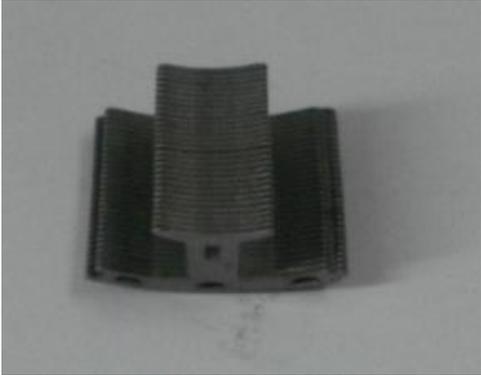
Routine inspection guide(control panel)

Process/ parts Name	Equipm ent	CTQ's,CTF's Projects			Importance	Control Process			
		NO	Products	Process		Requirement	Control means	Period	Recordi ng Doc
control panel		1	Appearan ce			1, PCB appearance no deformation, cracking and other defects; 2, PCB electric parts should be installed correctly, should be put back and get wrong, defects such as loose.	Visual Check	AQL1.0	Incomin g Inspecti on form
	EDX Detecto r	3	ROHS			No damage on the insulation barrier which will effect the functional of the products will be allowed.	EDX Detector	AQL10	
		4	Capability			DC12V voltage no-load current requirements 50 ~ 90 MA	ampere meter	AQL4.0	
	Image meter /calliper s	6	Dimensio n			30.20~30.80mm 1.50~1.70 mm	Image meter /calipers	AQL2.5	



Check List _ BLDC Pump Assembly



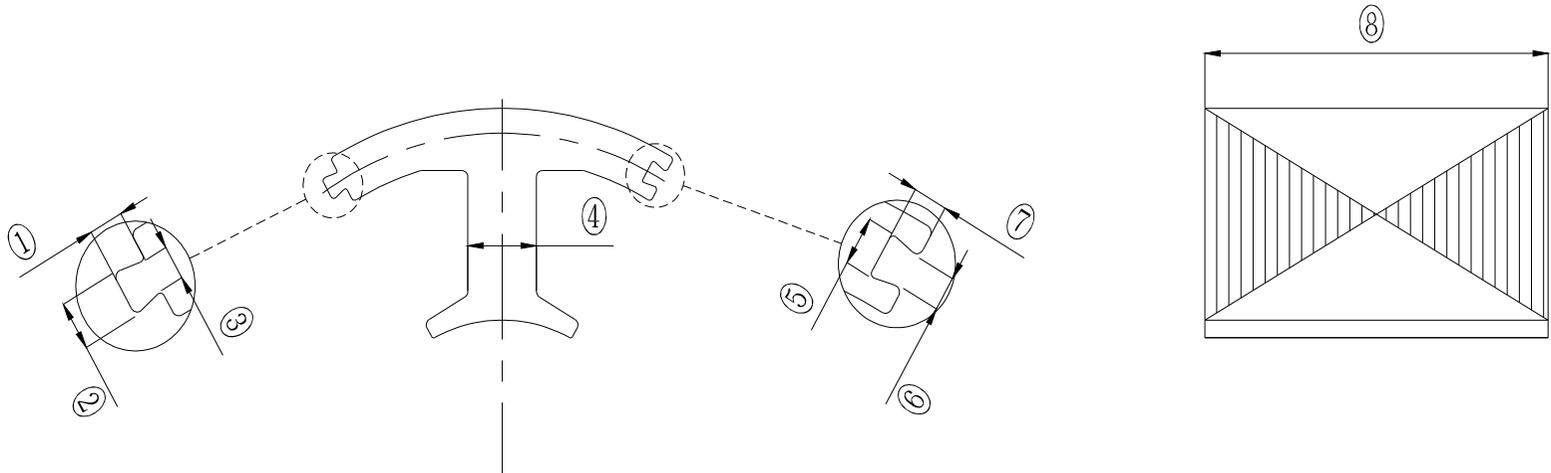
<p>Function</p> <p>magnetic effect</p>	<p>부품 전개</p> <p>Part name : Stator core</p> 
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<p>자주검사Point</p>		
<p>공정 IQC공정 : 버튼 조작감</p>	<p>공정 PQC공정 : Test Mode</p> <p>Stator thickness</p>	<p>공정 OQC공정 : 인쇄 박리</p>

불량 이력							
No.	불량 현상	원인	Tool	검출 장소	불량 수량	실패 비용	개선 내용
1							
2							
3							
4							

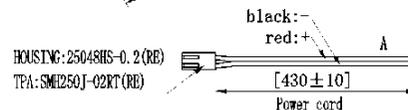
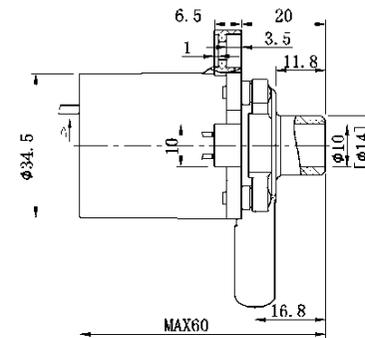
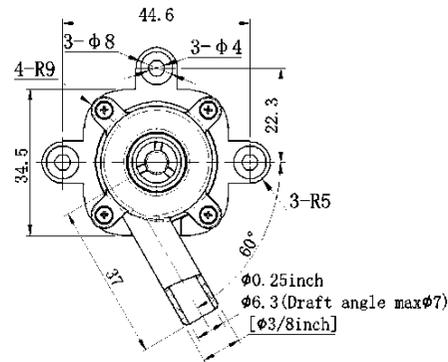
Routine inspection guide(stator core)

Process/ parts Name	Equipm ent	CTQ's,CTF's Projects			Importance	Control Process				
		NO	Products	Process		Requirement	Control means	Period	Recordi ng Doc	
stator core	Punchin g machine	1	Material			Cool Rolling Steel				
		2	Appearance			No crack or rust is allowed on the appearance	Visual Check	AQL=1 .5	IPOC Inspecti on Dairy Report	
		3	Dimension(m m)				(1) 0.73~0.74 mm	callipers	AQL=4 .0	Patrol Inspecti on Record
							(2) 0.995~1.015mm			
							(3) 0.695~0.715mm			
							(4) 2.97~3.01mm			
							(5) 0.985~1.005mm			
							(6) 0.685~0.705mm			
							(7) 0.76~0.77mm			
							(8) 14.75~15.25mm			



Routine inspection guide (Assemble)

Checking items		Requirement	important	tool	Checking level	AQL
Appearance		1/Impeller,winding and pump body are right, no leave	B	Visual check	S-3	1.5
		2/every part has no obvious injure	C	Visual check	S-3	1.5
Size		Outlet outer diameter: $\phi 9.53 \pm 0.08 \text{MM}$	B	Callipers	N=10	0
		Infill outer diameter: $\phi 14.0 \pm 0.1 \text{MM}$	B	Callipers	N=10	0
Performance	1/low-voltage start	DC9.6V can start normally	B	Loading test machine	S-3	1.0
	2/Current leakage	$V \cdot 1.06 / 4S \leq 5 \text{MA}$	A	Current leakage tester	S-3	0.65
	3/Turn to turn endure voltage test	Inter turn area and inter turn frequency $\geq 85\%$	A	General test for motor	S-3	0.65
	4/Insulaton Resistance	$\geq 100 \text{M}\Omega$	A	General test for motor	S-3	0.65
	4/Noise test	Load test $\leq 40 \text{db}$	B	Noise tester	N=5	0
	5/Flow rate test	power rating, $\phi 10$ drain pipe , 0M pump lift $\geq 4.5 \text{L/min}$	A	Flow rate tester	N=5	0
	6/Input power	$\leq 2 \text{W}$	A	Electrical parameter	N=5	0
	7/Incoming current	$\leq 0.25 \text{A}$	A	Electrical parameter	N=5	0
	8/Impeller pull-outforce and torsion	Impeller drawing force $\geq 6 \text{KGf}$	A	Tensometer	N=5	
	9/Gland pull-out	$\geq 4.0 \text{KGf}$ (Sampling Inspection, report)	A	Tensometer	N=5	0
10/ROHS	according with company ROHS standard	A	EDX-720 TEST	Material test		



(Control Plan)

Company Name: Jiangmen IDear-Hanyu Electrical Joint-Stock Co.,Ltd.																
Stage	Products		Drain Pump	NO	Revise Date	Revise Date	No.	Aud.	App.	Prepared on : 2012.11.09						
<input type="checkbox"/> PV	Product No.	ZL3015(BLDC LG)		1	May. 19th,2013						writer	auditing	approve			
<input type="checkbox"/> PR	Product name	24V(BLDC circulating pump)									Anna Huang	Mark Jin	Tony Wu			
<input checked="" type="checkbox"/> MP	Related Dept.	QE:Anna Huang, TECH DEPT.:Wang Hongbiao PRINCIPAL: Wang Hongbiao Karen Huang PRODUCTION DEPT.:Licol Zheng														
Technology acknowledgement of customers/Date(When Required)			Technology acknowledgement of customers/Date(When Required)							Other						
Contr ol No.	Controlling flow chart			Equipment	CTQ's,CTF's Projects			Impor tance	Control Process				Response		Steps for defect	Standard Document
	SUB	MAIN	O.S.		NO	Products	Process		Requirement	Control means	Period	Recording Doc	Pro.	QC		
A1			•	PA66 6G6F	EDX Detector	1	ROHS		Compliance to RoHS standard of Hanyu	EDX Detector						
					Alcohol Blowtorch	2	Component		Content of fiberglass controled in 30%±2%	Calculated By Weight	6PCS/Lot					
					electricity leakage tester	3	leakage Trace		Bring in 275V voltage,short circuit current should less than 0.5A	Creepage Resistant						
					Presing Testing Equipment	4	Heat-resistance Testing		Testing under 125 degree for 1 hour, impress less than 2 MM	Impress Dia.						
					Glow wire	5	Glow wire testing		750°C	Glow wire tester	10PCS/Lot					
A2			•	POM	EDX Detector	1	ROHS		Compliance to RoHS standard of Hanyu	EDX Detector	Every incoming of the material					
A3			•	Wire bonding		1	Appearance		No Burr	Visual Check	AQL1.5	Incoming Inspection form	○	Rework/Returns	Incoming Inspection Standard	
						2	Material		1. lead wire Spec. : UL 1007 24AWG , 2. lead wire Spec. : 25048HS-0.2(RE) 4. buckle Spec. : SMH250J-02RT(RE)	Compare to Spec.						
					Image meter /callipers	3	Dimension(mm)		(1) 2.90~3.10MM (2) 430~440mm	Image meter /callipers	AQL4.0					
					pull-out test	4	tensometer		wire and plug strength≥30N ;	tensometer	AQL4.0					
					EDX Detector	5	ROHS		Compliance to RoHS standard of Hanyu	EDX Detector	Every incoming of the material					
A4			•	Big O-RING		1	Appearance		Burr≤0.1mm No pastern	Visual Check	AQL1.5	Incoming Inspection form	○	Rework/Returns	Inspection Standard	
						2	Material		NBR	Compare to Spec.						
					EDX Detector	3	ROHS		Compliance to RoHS standard of Hanyu	EDX Detector	AQL10					
					sclerometer	4	Hardness		45~55°	sclerometer	AQL6.5					
					Image meter /callipers	5	Dimension		Inner Dia : Φ26.6 (+0.1 , -0.1) mm Wire Dia : Φ1.10±0.05mm	Image meter /callipers	AQL1.0					
A5	•			stator core	Punching machine	1	Material		Cool Rolling Steel				○		Material List	
						2	Appearance		No crack or rust is allowed on the appearance	Visual Check	AQL=1.5	IPQC Inspection Dairy Report	○	Selecting/Mould tooling repairing/Rejecting /technics improving	Patrol Inspection Guidance	
						3	Dimension(mm)		(1) 0.73~0.74 mm (2) 0.995~1.015mm (3) 0.695~0.715mm (4) 2.97~3.01mm (5) 0.985~1.005mm (6) 0.685~0.705mm (7) 0.76~0.77mm (8) 14.75~15.25mm	callipers	AQL=4.0	Patrol Inspection Record				

Contr ol No.	Controlling flow chart			Process/parts Name	Equipment	CTQ's,CTF's Projects		Impor tance	Control Process				Response		Steps for defect	Standard Document
	SUB	MAIN	O.S.			NO	Products		Process	Requirement	Control means	Period	Recording Doc	Pro.		
A6			•	rubber bearing cover		1	Appearance		Burr≤0.1mm No pastern	Visual Check	AQL1.5	Incoming Inspection form		○	Rework/Returns	Inspection Standard
						2	Material		NBR	Compare to Spec.						
					EDX Detector	3	ROHS		Compliance to RoHs standard of Hanyu	EDX Detector	AQL10					
					sclerometer	4	Hardeness		45~55°	sclerometer	AQL6.5					
					Image meter /callipers	5	Dimension		(1) 11.3~11.7 mm (2) 2.40~2.50 mm (3) 2.20~2.25 mm (4) 4.60~4.80 mm	Image meter /callipers	AQL4.0					
A7			•	Magnetic Core		1	Appearance		Burr < 0.1mm Magnetic Lacking≤2*2mm No Cracking	Visual Check	AQL1.5	Incoming Inspection form		○	Rework/Returns	Inspection Standard
					EDX Detector	2	ROHS		Compliance to RoHs standard of Hanyu	EDX Detector	AQL10					
					Teslameter	3	Strength of Magnetic Field		Normal Magnetic Strength≥125mT Magnetic Strenght of demagnetization≥125mT	Teslameter	AQL10 AQL10					
					Dial test Indicato	4	Pulsation of Magnetic Core	Up and Down	≤0.1mm	Dial Indicator	AQL10					
					Image meter /callipers	5	Dimension		(1) 2.8±0.15 mm (2) 20.8(+0.2/-0.2) mm	Image meter /callipers	AQL1.0					
A8			•	Enamelled Wire	EDX Detector	1	ROHS		Compliance to RoHs standard of Hanyu	EDX Detector	12M/Lot	Incoming Inspection form		○	Rework/Returns	Inspection Standard
						2	Material		QA-1/155	Compare to Spec.						
					pin-hole testing machine	3	Pinhole		≤1pcs (6m Enamelled Wire)	pin-hole testing machine	10PCS/Lot					
					Conductor resistance value	4	Resistance testing		Put 1M in room temp. 20°C for more than 4hs, resisittance value:0.9219~1.0159	Multimeter/Resis tance testing	3M/Lot					
					Micrometer	5	Dimension		Wire Outer Dia.:BZ-PS-003Cu Standard Conductor Dia:BZ-PS-003Cu Standard Thickness:BZ-PS-003Cu Standard	Micrometer	AQL1.0					
A9			•	control panel		1	Appearance		1, PCB appearance no deformation, cracking and other defects; 2, PCB electric parts should be installed correctly, should be put back and get wrong, defects such as loose	Visual Check	AQL1.0	Incoming Inspection form		○	Rework/Returns	Inspection Standard
					EDX Detector	2	ROHS		No damage on the insulation barrier which will effect the functional of the products will be allowed.	EDX Detector	AQL10					
						3	Capability		DC12V voltage no-load current requirements 50 ~ 90 MA	ampere meter	AQL4.0					
					Image meter /callipers	4	Dimension		30.20~30.80mm 1.50~1.70 mm	Image meter /callipers	AQL2.5					

Contr ol No.	Controlling flow chart			Process/parts Name	Equipment	CTQ's,CTF's Projects		Impor tance	Control Process				Response		Steps for defect	Standard Document		
	SUB	MAIN	O.S.			NO	Products		Process	Requirement	Control means	Period	Recording Doc	Pro.			QC	
	B1	•					Pump cover		Injection machine	1 Material			POM					
					2 Appearance			1.Short moulding, deformation or crack are not allowed on the finished products 2.Burr should not >0.1MM	Visual Check	normalII AQL:MAJ1.0 MIN2.5	IPQC Inspection Dairy Report							
					3 Dimension(mm)			(1) 9.53 (+0.08,-0.08)mm (2) 28.9 (+0.05,-0.05) mm (3) 14 (+0.1,-0.1)mm	callipers	model 1/2H AQL:MAJ0.25 MIN1.0	Patrol Inspection Record							
					4 Distortion			Fixed with the pump lid≤0.2MM	callipers	10PCS/4H								
					5 Technical parameter(HT200)		*	NO:ZS-B366	Visual Check / Sampling Inspection	1 time/4H	Patrol Inspection Record	o					Injection Process Sheet	
B2	•			Pump Body	Injection machine	1 Material			POM					o	o	Selecting/Mould tooling repairing/Rejecting /technics improving	Material List	
					2 Appearance			1.Short moulding, deformation or crack are not allowed on the finished products 2.Burr should not >0.1MM	Visual Check	normalII AQL:MAJ1.0 MIN2.5	IPQC Inspection Dairy Report							
					3 Dimension(mm)			(1) 35 (+0.05,-0.05) mm (2) 2.5(+0.02,+0) mm (3) 11.5 (+0.05, 0) mm (4) 29 (+0.05, 0) mm (5) 13 (0, -0.1) mm (6) 3.5 (+0.1, -0.1) mm (7) 31.5 (+0.1, 0) mm	callipers	model 1/2H AQL:MAJ0.25 MIN1.0	Patrol Inspection Record							
					4 Distortion			Fixed with the pump lid≤0.2MM	callipers	10PCS/4H								
					5 Eccentricity			< 0.2MM	callipers	model 1/4H								
					6 Technical parameter(HT200)		*	NO:ZS-B366	Visual Check / Sampling Inspection	1 time/4H	Patrol Inspection Record	o						Injection Process Sheet
B3	•			press cover	Injection machine	1 Material			POM					o	o	Selecting/Mould tooling repairing/Rejecting /technics improving	Material List	
					2 Appearance			1.Short moulding, deformation or crack are not allowed on the finished products 2.Burr should not >0.1MM	Visual Check	normalII AQL:MAJ1.0 MIN2.5	IPQC Inspection Dairy Report							
					3 Dimension(mm)			(1) 12.3 (0,-0.1)mm (2) 4 (+0.1, 0) mm (3) 8.7 (±0.1) mm (4) 11 (0,-0.1) mm (5) 12.5 (+0.05,-0.05)mm	callipers	model 1/2H AQL:MAJ0.25 MIN1.0	Patrol Inspection Record							
					4 Technical parameter(HT90)		*	No:ZS-B362	Visual Check / Sampling Inspection	1time/2H	Patrol Inspection Record	o						Injection Process Sheet

Contr ol No.	Controlling flow chart			Process/parts Name	Equipment	CTQ's,CTF's Projects		Impor tance	Control Process				Response		Steps for defect	Standard Document		
	SUB	MAIN	O.S.			NO	Products		Process	Requirement	Control means	Period	Recording Doc	Pro.			QC	
B4	•			Bearing	Injection machine	1	Material			POM					o		Selecting/Mould tooling repairing/Rejecting /technics improving	Patrol Inspection Guidance
						2	Appearance			1.Short moulding, deformation or crack are not allowed on the finished products 2.Burr should not >0.1MM	Visual Check	normalII AQL:MAJ1.0 MIN2.5	IPQC Inspection Dairy Report		o			
						3	Dimension(mm)		(1)ø5.9(+0.05,-0.05)mm	callipers	model1/2H AQL:MAJ0.25 MIN1.0	Patrol Inspection Record		o				
									(2) 2.5(+0.07,+0.02)mm (3) ø9(+0.1,-0.1) mm									
4	Technical parameter(HT160)		*	NO:ZS-B335	Visual Check / Sampling Inspection	1time/2H	Technics Sampling		o									
B5	•			upper bobbin	Injection machine	1	Material			PA66					o		Selecting/Mould tooling repairing/Rejecting /technics improving	Patrol Inspection Guidance
						2	Appearance			1.Short moulding, deformation or crack are not allowed on the finished products 2.Burr should not >0.1MM	Visual Check	NormalII AQL:MAJ1.0 MIN2.5	IPQC Inspection Dairy Report		o			
						3	Dimension(mm)		(1)3(+0.05/+0.1)	Video projector	model 1/2H AQL:MAJ0.25 MIN1.0	Patrol Inspection Record		o				
									(2) 12.5 (0,-0.08)mm									
	(3) 34°±1°																	
	(4) 3(+0.05/0) mm	Data display caliper																
	(5) 4.21(+0.1,-0.1) mm																	
4	Technical parameter(HT160)		*	NO:ZS-B351	Visual Check / Sampling Inspection	1time/2H	Technics Sampling		o									
B6	•			lower bobbin	Injection machine	1	Material			PA66					o		Selecting/Mould tooling repairing/Rejecting /technics improving	Patrol Inspection Guidance
						2	Appearance			1.Short moulding, deformation or crack are not allowed on the finished products 2.Burr should not >0.1MM	Visual Check	NormalII AQL:MAJ1.0 MIN2.5	IPQC Inspection Dairy Report		o			
						3	Dimension(mm)		(1) 12.5 (0, -0.08) mm	Video projector	model 1/2H AQL:MAJ0.25 MIN1.0	Patrol Inspection Record		o				
									(2) 3 (+0.05, 0) mm									
	(3) 4.21 (+0.1, -0) mm	Data display caliper																
4	Technical parameter(HT160)		*	NO:ZS-B351	Visual Check / Sampling Inspection	1time/2H	Technics Sampling		o									
B7	•			Impeller	Injection machine	1	Material			POM					o		Selecting/Mould tooling repairing/Rejecting /technics improving	Patrol Inspection Guidance
						2	Appearance			1.Short moulding, deformation or crack are not allowed on the finished products 2.Burr should not >0.1MM	Visual Check	NormalII AQL:MAJ1.0 MIN2.5	IPQC Inspection Dairy Report		o			
						3	Dimension(mm)		(1) 4 (+0.1,-0.1)mm	Data display caliper	Model1/2H AQL:MAJ0.25 MIN1.0	Patrol Inspection Record		o				
									(2) ø2.3 (0,-0.1) mm									
									(3) 5(+0.1,-0.1)mm									
4	Eccentricity			< 0.18MM	callipers	model 1/4H												
5	Technical parameter(HT160)		*	NO:ZS-B374	Visual Check / Sampling Inspection	1time/2H	Technics Sampling		o									

Contr ol No.	Controlling flow chart			Process/parts Name	Equipment	CTQ's,CTF's Projects		Impor tance	Control Process				Response		Steps for defect	Standard Document
	SUB	MAIN	O.S.			NO	Products		Process	Requirement	Control means	Period	Recording Doc	Pro.		
C1		•		Assemble contact pin into bobbin	handmade	1	inspection		No damage on plastic frame	Visual Check	100%		○		Rework	Process sheet
C2		•		Winding	Winding Machine, Specified Clamp	1	Turns		220±5circles	every set	1time/2H	Patrol Inspection Record	○		Rework	Process sheet
						2	Wire Dia.		Φ0.15mm	every start-up	1time/2H					
						3	Tension		100-180g	every set	1time/2H					
						4	Appearance		The wire is disposed evenly, no loosing, no intercrossing,no surface damage	According to sample	100%					
C3		•		Assemble stator silicon steel with	handmade	1	Appearance		No distortion on stator silicon steel	Visual Check	100%		○		Rework	Process sheet
						2			No damage on plastic frame and no sureface damage on Cu wire							
C4		•		Dipping with tin	Tinning furnace	1		Temp.	380±20°C	thermometer	QC:1times/4h	Patrol and	○		Rework	Process sheet
						2	Appearance		1 No scalding on plastic frame	According to limit OK sample	100%					
						3			2 Wire been tinning completely.							
C5		•		Electrical Testing	Test board for motor general test	1			Job seting test	Open/shorted sample	Every start-up	/	○		Rework	Process sheet
						2	test voltage		600V	Showed by equipment	100%	Sample Insepction				
						3	test time		1 second	Showed by equipment	100%	Sample Insepction				
						4	Electric Strength		≤0.25mA	Showed by equipment	100%	Sample Insepction				
						5	Insulation Resistance		≥100MΩ	Showed by equipment	100%	Sample Insepction				
						6	Cold Resistance		37~41Ω	Showed by equipment	100%	Sample Insepction				
						7	interturn area (surge area)		≤15%	Showed by equipment	100%	Sample Insepction				
C6		•		Welding circuit board	jointing gun	1	wire bonding		430-440mm (1007/24#+25048HS-0.2(RE)	Visual Check	100%	Sample Insepction Form	○		Rework	Process sheet
						2	control panel		24VDC,0.25A 4.5L/min	Visual Check	100%					
						3		Temp. of welding torch	380°C ~ 520°C	temperature measuring set	1time/4H					
						4	Appearance		Enough tin welded, no loose welding	Visual Check	100%					
C7		•		Assemble the	handmade	1	bearing		bearing, rubber bearing cover, press cover	Visual Check	100%	/	○	Rework	Process sheet	
						2	Appearance		The correct component specifications, assembly in	Visual Check	100%	/				
C8		•		Press impeller	Pressure	1	Pressure		Rotor assembling Upper limit of pressure	Checkup	1	/	○			
						2	Electric pull power tester	Impeller pressing pull power	Pull power	Pulling force≥6KG	Patrol Inspection	1time/4H				
C9		•		Assemble O-ing and pump	handmade	1	O-RING		black , NBR , 26.6*1.1	callipers	1time/4H	Sample	○		Rework	Process sheet
						2	Appearance		Assembly direction	Visual Check	100%	/				

Contr ol No.	Controlling flow chart			Process/parts Name	Equipment	CTQ's,CTF's Projects		Impor tance	Control Process				Response		Steps for defect	Standard Document	
	SUB	MAIN	O.S.			NO	Products		Process	Requirement	Control means	Period	Recording Doc	Pro.			QC
C10		●		Screwing , assemble stator	Electrical Screwdriver	1			screw spec	ST-2.2*8.5	Visual Check	100%	/	○			
						2	body			POM , BLDC 34.5*40.5	Visual Check	100%	/	○			
						3	Appearance			The gap between pump body and pump lid ≤0.3mm	Visual Check	100%	/	○			
						4	bearing cover and pump body pull power	Pull power		bearing cover and pump body pull power≥4.2KG	Visual Check	100%	/	○			
						5	Torque meter			10-15Kgf.cm	Showed by equipment	Every start- up	/	○		Rework	Process sheet
C11		●		Empty testing	Variable frequency power supply. Stator test	1		start-up cycles		3 times	Self-Check	100%	/	○		Rework	Process sheet
						2	Noise			Hearing from different direction to ensure no noise	Self-Check	100%					
						3	Free turning distance			> 120° angle	Self-Check	100%					
C12				Load epoxy resin		1	A/B 料			A: B with adhesive proportion	Visual Check	100%	/	○		Rework	Process sheet
						2	Appearance			Appearance condensate formation, clean.	Visual Check	100%	/			Rework	
C13				Loaded testing, drying	Test board, fixed equipment,vari able frequency power supply	1				Job seting test	Loading OK sample	Every start- up	/	○		Rework	Process Sheet / Sample Inspection Form
						2	Appearance			Blow-dry pump,no bead	According to working instruction	100%	/			Rework	
						3	Appearance			Pump lid direction	Fixed equipment	100%	/			Rework	
						4	Low voltage starting test	Voltage/Frequency		24V*0.85	Self-Check	Change sample and start-up	/			Rework	
						5		Start-up cycles		3 times	Equipment	100%	/			Rework	
						6				Drain normally	Self-Check	100%	/			Rework	
						7	High voltage noise test	Voltage/Frequency		24V*1.06	Self-Check	100%	/			Rework	
						8		Start-up cycles		3 times	Self-Check	100%	/			Rework	
						9		noise		NO exceptiona niose	Self-Check	100%	/			Rework	
C14				Stick	By hand	1	Appearance			Assembly direction	Self-Check	100%	/	○		Rework	Process Sheet / Sample
C15				Appearance checking	By hand	1	Appearance			1, well assembly of terminal plate 2, well fixed of big seal ring 3, no obvious burr or dirt on appearance	Self-Check	100%	/	○		Rework	Process Sheet / Sample Inspection Form
C16				Store the finished products after packing.	Capper	1	Carton Dimension			36.5*32.5*38.5cm	Visual Check	100%	/	○		Rework	Process Sheet / Sample Inspection Form
						2	Pcs / carton			140 pcs	Visual Check	100%	/			Rework	
						3	Carton type			English word	Visual Check	100%	/			Rework	
						4	Protecting hood and fundus			Protecting hood and fundus must not piece on.	Visual Check	100%	/			Rework	
						5	Qty in final carton			Verify by checking the orders, verify the qty in final carton to ensure the enough quantity	Visual Check	100%	/			Rework	



JIANGMEN HANYU ELECTRICAL CO., LTD.

maker	prepared	approved	Outgoing Inspection Report				customer	prepered	approved
	出厂检验报告								

supplier 供应商	HANYU 汉字	product name 产品名称		Model 型号	
Spec 规格		Lot No. 批号		Pass Qty 合格数	

序号 NO.	AQL	抽样数 sample Qty.	允收 AC	拒收 Re	检查结果 inspection	备注 Remark
1	1.5					1. Inspection according to standard GB2828.1-2003. 2. 不够10PCS抽样的记录全部数据, 超出10PCS抽样的记录前10PCS数据; If sample size more than 10pcs, record data of 10pcs among total samples. 3. 检验依据《出厂检验指导书》及样品; Inspection as per "outgoing inspection instructions" and approved sample.
2	1.0					
3	0.65					

1. Inspection Items and results:

#	Item	sample NO Standard	Result										Judgment	
			0001	0001	0001	0001	0001	0001	0001	0001	0001	0001		
1	外观	accord with appearance inspection												
2	尺寸	_____mm												
		_____mm												
		_____mm												
3	low-voltage start 低压启动	____V/____Hz ≤____s												
4	Current leakage 泄漏电流	____V/4s ≤0.5mA												
5	Turn to turn endure voltage test 匝间耐压	Surge Area <____%												
		Surge frequency <____%												
6	Insulaton Resistance 绝缘电阻	≥____MΩ												
7	Noise test 噪音测试	≤55dB												
8	Flow rate test 流量测试	≥____L/min												
9	Input power 输入功率	≤____W												
10	Incoming current 输入电流	≤____A												
11	Impeller pull-outforce and torsion 风叶拉拔力和扭力	≥6KGF												
12	Gland pull-out 压盖与泵体拉拔力	≥4. 2KGF												
13	ROHS	accord with Hanyu's RoHS standard												

Remarks: all the items above must write the specific data expect item 1, 9, 10, 11_____.

Inspection results : Lot accept

Lot failed

Document No. :HY-QR-467

outgoing inspection record

Revision:A

page 1of 1



循环水泵9010007出厂检验指导 Cycle Pump 9010007 outgoing inspection standard

Product No 产品编号	9010007	Rating voltage and frequency 额定电压/频率	DC24V	Rating current 额定电流	0.25A	
<p style="text-align: center;">HOUSING: 25048BS-0.2 (RE) TPA: SMH250J-02RT (RE) Power cord length: [430 ± 10]</p>						
checking foundation 检验依据	Manufacture order, material list and GB/T2828.1-2003 生产任务书、材料表、GB/T2828.1-2003					
Checking items 检验项目	Requirement 检验要求	important 重要度	tool 检验工具	Checking level 检验水平	AQL	
Appearance 外观	1/Impeller, winding and pump body are right, no leave. 对照材料表检验各配件型号是否正确, 无错漏装。	B	Visual check 目测	S-3	1.5	
	2/every part has no obvious injure 各部件无明显可见损伤, 杂质及飞边毛刺等。	C	Visual check 目测	S-3	1.5	
Size 尺寸	Outlet outer diameter: $\phi 3/\phi 8$ inch or $\phi 9.5$ mm 出水口外径: $\phi 3/8$ 英寸或 $\phi 9.5$ mm	B	Callipers 带表卡尺	N=10	0	
	Infall outer diameter: $\phi 14 \pm 0.2$ MM 进水口外径: $\phi 14 \pm 0.2$ MM	B	Callipers 带表卡尺	N=10	0	
	引线的长度: 430 ± 10 MM	B	ruler 直尺	N=10	0	
Performace 性能	1/low-voltage start 低压启动	DC12V can start normally DC12V能正常启动	B	Loading test machine 试水测试台	S-3	1.0
	2/Current leakage 泄漏电流	$V \text{额}/4S \leq 0.25\text{MA}$	A	Current leakage tester 泄漏电流测试仪	S-3	0.65
	3/Turn to turn endure voltage test 匝间耐压	Interturn area and interturn frequency $\geq 85\%$ 匝间面积, 频率 $\geq 85\%$	A	General test for motor 电机综合测试台	S-3	0.65
	4/Insulaton Resistance 绝缘电阻	$\geq 100\text{M}\Omega$	A	General test for motor 电机综合测试台	S-3	0.65
	4/Noise test 噪音测试	Load test $\leq 40\text{db}$ 负载 $\leq 40\text{db}$	B	Noise tester 噪音测试仪	N=5	0
	5/Flow rate test 流量测试	power rating, $\phi 10$ drain pipe, 0M pump lift $\geq 4.5\text{L}/\text{min}$ 额定功率, $\phi 10$ 排水管, 0M扬程 $\geq 4.5\text{L}/\text{分钟}$	A	Flow tate tester 流量测试仪	N=5	0
	6/Input power 输入功率	$\leq 5\text{W}$	A	Electrical parameter 电参数仪	N=5	0
	7/Incoming current 输入电流	$\leq 0.25\text{A}$	A	Electrical parameter 电参数仪	N=5	0
	8/Impeller pull- outforce and torsion 风叶拉拔力和扭力	风叶拉拔力 $\geq 6\text{KGf}$ 叶扭力 $\geq 3\text{N}\cdot\text{m}$ (巡检测试, 提供报告)	A	Tensometer 拉力测试工装	N=5	
	9/Gland pull-out 压盖与泵体拉拔力	$\geq 4.2\text{KGf}$ (巡检测试, 提供报告)	A	Tensometer 拉力测试工装	N=5	0
10/ROHS	according with company ROHS standard 符合本厂 ROHS标准	A	EDX-720 TEST	Material test 散件测试		

plait 编制: ANNA

chack 审核: MARK JIN

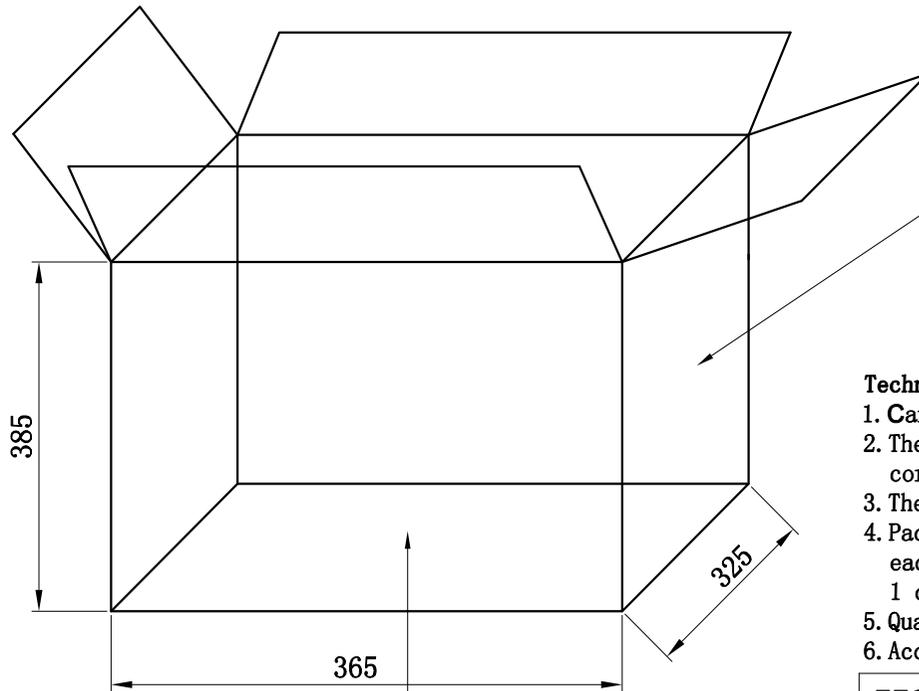
approve 批准: Tony

文件编号: CP-9010007

2012-12-6

共1页第1页

RELEASING THIS DRAWING WITHOUT PERMISSION OF IDEAR-HANYU ELECTRICAL SHOULD BE ACCUSED ACCORDING TO LAWS AND COMPANY RULES.



Circulating pump

HANDLE WITH CARE

QTY: PCS
G. W. : KG
N. W. : KG

SIZE: 36. 5x32. 5x38. 5cm

Technical requirements:

1. Carton structure is cover box;
2. The marking size is outside dimension, material is double pit corrugated paper, and thickness is 6mm;
3. The text and pattern should print on four sides with black colour;
4. Packing type: each carton with 7 layers, each layer with 20 grids, each grid with 1 pump, total 140 pumps. Net weight for lpc is 98g, for 1 carton is 13.7kg, and gross weight is 14.5kg.
5. Quality of carton should accord with GB6543-86
6. Accord with Hanyu carton packing requirements:BZ-00-001.

Circulating pump

JIANMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO., LTD
Address: No. 336 Qinglan Road, HI-TECH Development Zone, Jianghai District, Jiangmen City, Guangdong Province, China

77030144	Card board	7	35x31.5x0.45	Single pit corrugated paper(δ≥4mm)
77020144	Layer board	8	35x31.5x0.4	Single pit corrugated paper(δ≥4mm)
77010144	Carton	1	36.5x32.5x38.5	Five layer imitation kraft paper (δ≥6mm)
Serial number	Project	Quantity	Size(cm)	Remarks

Material linear dimension tolerance(L)		Angle dimension tolerance(L), According to GB/T1804-2000 medium M level control.		Material: Five layer imitation kraft paper (δ≥6mm)	Parts name: Carton
L<6	±0.1	L<10	±1°		P/N: 36.5x32.5x38.5
6≤L<30	±0.2	10≤L<50	±30'	Proportion Weight (g)	Drawing No: 77010144
30≤L<120	±0.3	50≤L<120	±20'		Edition:
120≤L<400	±0.5	120≤L<400	±10'		
400≤L<1000	±0.8	400≤	±5'		
1000≤L	±1.2				
Design	李昌建 2012/11/3	Standardization		JIANMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO.,LTD	
Drawing	李昌建 2012/11/3	Technology			
Audit	王红标 2012/11/3	Approval			

Note: Figure that are involved in the material Must comply with Idear, han yu company The latest Controlled version (The environmental directives instruction) requirements.

RELEASING THIS DRAWING WITHOUT PERMISSION OF IDEAR-HANYU ELECTRICAL SHOULD BE ACCUSED ACCORDING TO LAWS AND COMPANY RULES.



315

350

64

20

15

60

Technical requirements:

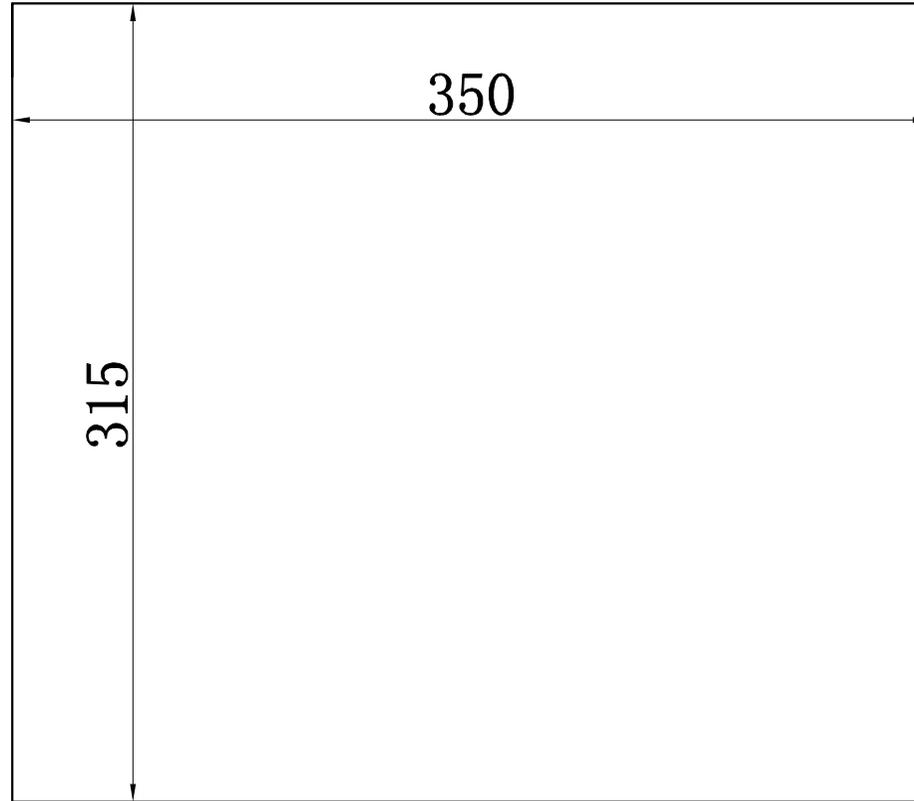
1. Material is single pit corrugated paper, and thickness is 4.5mm
2. Each carton with 7 layers, and car board is 48mm high
3. Each layer with 4x5=20 grids, as above picture
4. Quality of carton should accord with GB6543-86
5. Accord with Hanyu carton packing requirements: BZ-00-001.

Material linear dimension tolerance(L)		Angle dimension tolerance(L), According to GB/T1804-2000 medium M level control.		Material: Single pit corrugated ($\delta \geq 4\text{mm}$)	Parts name: Card board
L<6	± 0.1	L<10	$\pm 1^\circ$		P/N: 35x31.5x0.45
6≤L<30	± 0.2	10≤L<50	$\pm 30'$		Drawing No: 77030144
30≤L<120	± 0.3	50≤L<120	$\pm 20'$		Edition:
120≤L<400	± 0.5	120≤L<400	$\pm 10'$		
400≤L<1000	± 0.8	400≤	$\pm 5'$	Proportion	Weight (g)
1000≤L	± 1.2				
Design	李昌建 2012/11/3	Standardization			JIANMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO.,LTD
Drawing	李昌建 2012/11/3	Technology			
Audit	王红标 2012/11/3	Approval			



Note: Figure that are involved in the material Must comply with Idear, han yu company The latest Controlled version (The environmental directives instruction) requirements.

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Technical requirements :

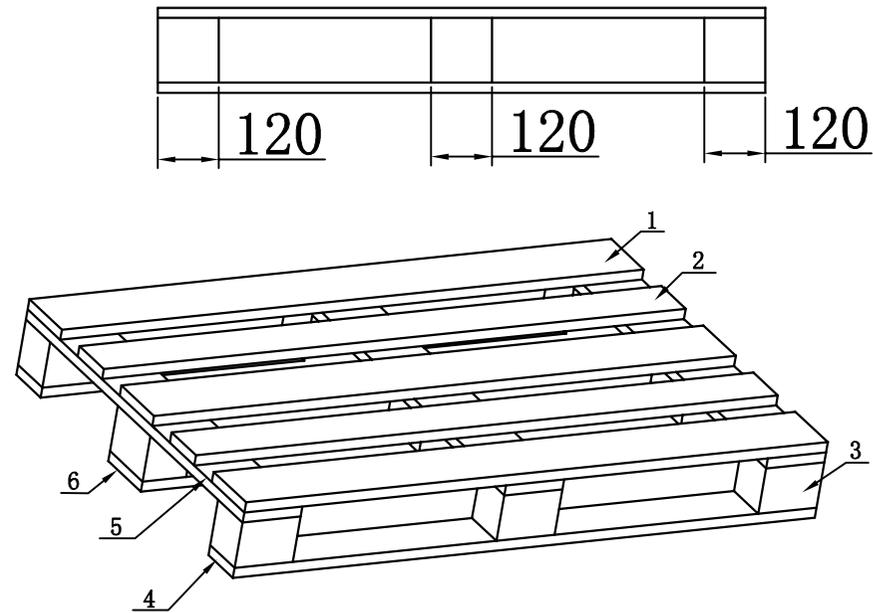
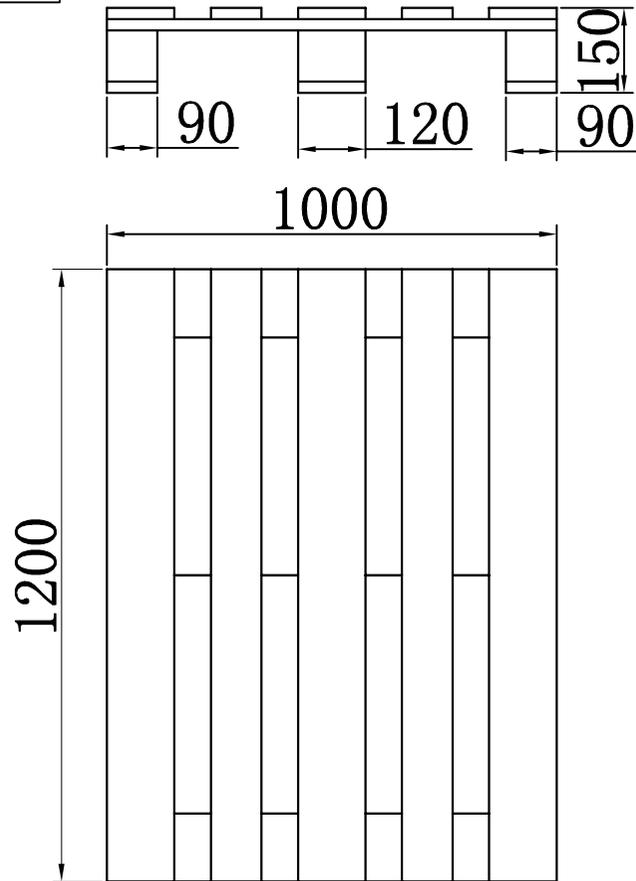
1. Material is single pit corrugated paper, and thickness is 4mm. Each carton with 8 layer boards.
2. Quality of carton should accord with GB6543-86
3. Accord with Hanyu carton packing requirements: BZ-00-001.

Material linear dimension tolerance(L)		Angle dimension tolerance(L), According to GB/T1804-2000 medium M level control.		Material: Single pit corrugated ($\delta \geq 4\text{mm}$)	Parts name: Layer board		
L<6	± 0.1	L<10	$\pm 1^\circ$		Proportion	Weight (g)	P/N: 35x31.5x0.4
6≤L<30	± 0.2	10≤L<50	$\pm 30'$	Drawing No: 77030144			
30≤L<120	± 0.3	50≤L<120	$\pm 20'$	Edition:			
120≤L<400	± 0.5	120≤L<400	$\pm 10'$				
400≤L<1000	± 0.8	400≤	$\pm 5'$				
1000≤L	± 1.2						
Design	李昌建 2012/11/3	Standardization		 JIANMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO.,LTD			
Drawing	李昌建 2012/11/3	Technology					
Audit	王红标 2012/11/3	Approval					



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Note:

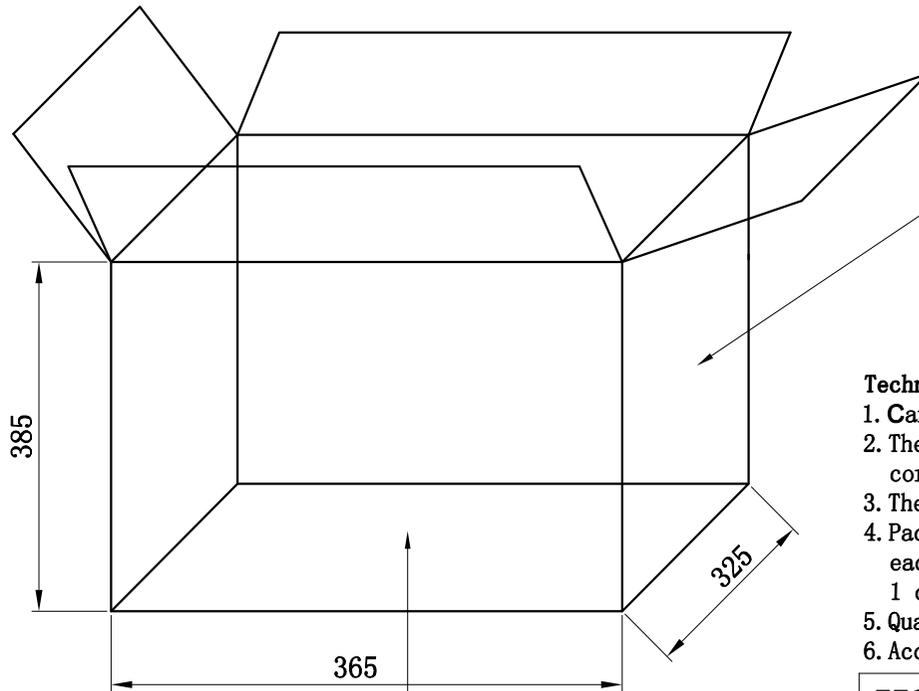
Pallet(size: 1000x1200x150mm) can be packed with 3 layers, each layer with 6 boxes, total 18 boxes, and 2520 pumps. Total height should not exceed 1200mm, and gross weight is about 270Kg.

No.	Item	Quantity	Size	Remark
6	Motherboard	1	1200*120*20	
5	Bridge board	2	1000*120*20	
4	Motherboard	2	1200*90*20	
3	Sleeper	9	120*90*90	
2	Faceplate	2	1200*90*20	
1	Faceplate	3	1200*120*20	

Material linear dimension tolerance(L)		Angle dimension tolerance(L), According to GB/T1804-2000 medium M level control.		Material: Veneer	Parts name:BLDC Circulating PUMP
L<6	±0.1	L<10	±1°		P/N: 35x31.5x0.4
6≤L<30	±0.2	10≤L<50	±30'		Drawing No: 77110001
30≤L<120	±0.3	50≤L<120	±20'		
120≤L<400	±0.5	120≤L<400	±10'	Proportion	Weight (g)
400≤L<1000	±0.8	400≤	±5'	Edition:	
1000≤L	±1.2				
Design	李昌建 2012/11/3	Standardization		 JIANMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO.,LTD	
Drawing	李昌建 2012/11/3	Technology			
Audit	王红标 2012/11/3	Approval			

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Circulating pump



QTY: PCS
G. W. : KG
N. W. : KG

SIZE: 36.5x32.5x38.5cm

Technical requirements:

1. Carton structure is cover box;
2. The marking size is outside dimension, material is double pit corrugated paper, and thickness is 6mm;
3. The text and pattern should print on four sides with black colour;
4. Packing type: each carton with 7 layers, each layer with 20 grids, each grid with 1 pump, total 140 pumps. Net weight for 1pc is 98g, for 1 carton is 13.7kg, and gross weight is 14.5kg.
5. Quality of carton should accord with GB6543-86
6. Accord with Hanyu carton packing requirements: BZ-00-001.

Circulating pump

JIANMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO., LTD
Address: No. 336 Qinglan Road, HI-TECH Development Zone, Jianghai District, Jiangmen City, Guangdong Province, China

77030144	Card board	7	35x31.5x0.45	Single pit corrugated paper(δ≥4mm)
77020144	Layer board	8	35x31.5x0.4	Single pit corrugated paper(δ≥4mm)
77010144	Carton	1	36.5x32.5x38.5	Five layer imitation kraft paper (δ≥6mm)
Serial number	Project	Quantity	Size(cm)	Remarks

Material linear dimension tolerance(L)		Angle dimension tolerance(L), According to GB/T1804-2000 medium M level control.		Material: Five layer imitation kraft paper (δ≥6mm)	Parts name: Carton
L<6	±0.1	L<10	±1°		P/N: 36.5x32.5x38.5
6≤L<30	±0.2	10≤L<50	±30'	Proportion Weight (g)	Drawing No: 77010144
30≤L<120	±0.3	50≤L<120	±20'		Edition:
120≤L<400	±0.5	120≤L<400	±10'		
400≤L<1000	±0.8	400≤	±5'		
1000≤L	±1.2				
Design	李昌建 2012/11/3	Standardization		 JIANMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO.,LTD	
Drawing	李昌建 2012/11/3	Technology			
Audit	王红标 2012/11/3	Approval			

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315

350

64

20

15

60

Technical requirements:

1. Material is single pit corrugated paper, and thickness is 4.5mm
2. Each carton with 7 layers, and car board is 48mm high
3. Each layer with 4x5=20 grids, as above picture
4. Quality of carton should accord with GB6543-86
5. Accord with Hanyu carton packing requirements: BZ-00-001.

Material linear dimension tolerance(L)		Angle dimension tolerance(L), According to GB/T1804-2000 medium M level control.		Material: Single pit corrugated ($\delta \geq 4\text{mm}$)	Parts name: Card board
L<6	± 0.1	L<10	$\pm 1^\circ$		P/N: 35x31.5x0.45
6≤L<30	± 0.2	10≤L<50	$\pm 30'$		Drawing No: 77030144
30≤L<120	± 0.3	50≤L<120	$\pm 20'$		Edition:
120≤L<400	± 0.5	120≤L<400	$\pm 10'$		
400≤L<1000	± 0.8	400≤	$\pm 5'$	Proportion	Weight (g)
1000≤L	± 1.2				
Design	李昌建 2012/11/3	Standardization			JIANMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO.,LTD
Drawing	李昌建 2012/11/3	Technology			
Audit	王红标 2012/11/3	Approval			



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Technical requirements :

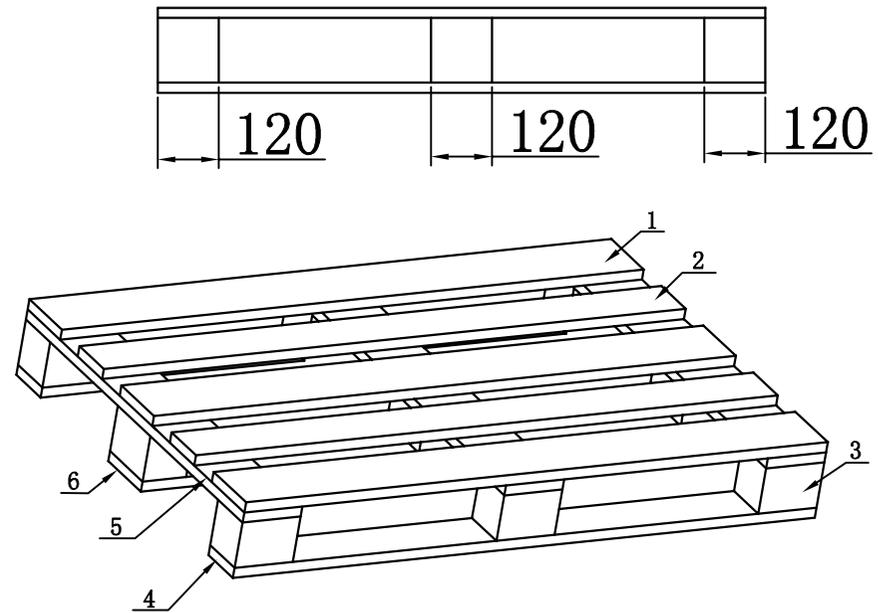
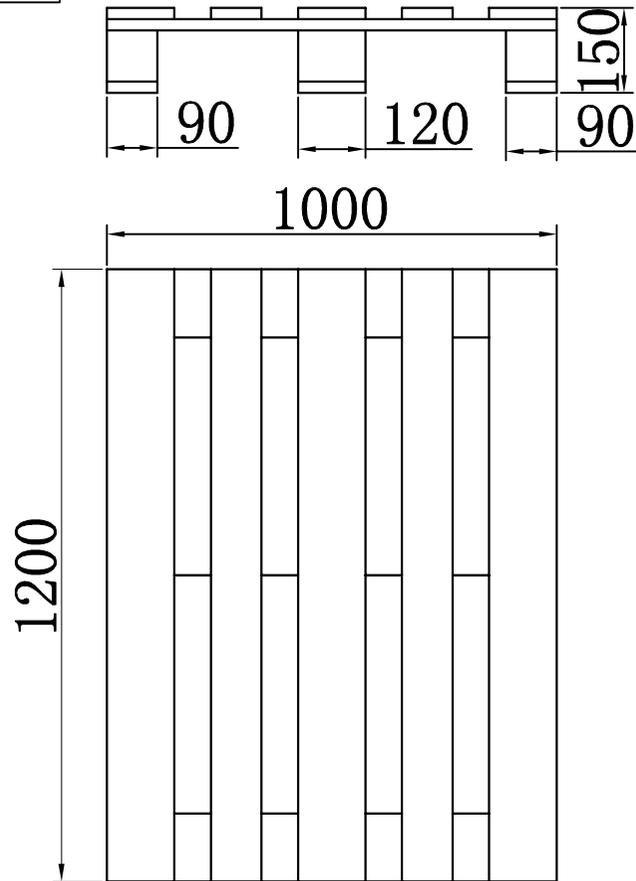
1. Material is single pit corrugated paper, and thickness is 4mm. Each carton with 8 layer boards.
2. Quality of carton should accord with GB6543-86
3. Accord with Hanyu carton packing requirements: BZ-00-001.

Material linear dimension tolerance(L)		Angle dimension tolerance(L), According to GB/T1804-2000 medium M level control.		Material: Single pit corrugated ($\delta \geq 4\text{mm}$)	Parts name: Layer board		
L<6	± 0.1	L<10	$\pm 1^\circ$		Proportion	Weight (g)	P/N: 35x31.5x0.4
6≤L<30	± 0.2	10≤L<50	$\pm 30'$	Drawing No: 77030144			
30≤L<120	± 0.3	50≤L<120	$\pm 20'$	Edition:			
120≤L<400	± 0.5	120≤L<400	$\pm 10'$				
400≤L<1000	± 0.8	400≤	$\pm 5'$				
1000≤L	± 1.2						
Design	李昌建	2012/11/3	Standardization			 JIANMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO.,LTD	
Drawing	李昌建	2012/11/3	Technology				
Audit	王红标	2012/11/3	Approval				



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Note:

Pallet(size: 1000x1200x150mm) can be packed with 3 layers, each layer with 6 boxes, total 18 boxes, and 2520 pumps. Total height should not exceed 1200mm, and gross weight is about 270Kg.

No.	Item	Quantity	Size	Remark
6	Motherboard	1	1200*120*20	
5	Bridge board	2	1000*120*20	
4	Motherboard	2	1200*90*20	
3	Sleeper	9	120*90*90	
2	Faceplate	2	1200*90*20	
1	Faceplate	3	1200*120*20	

Material linear dimension tolerance(L)		Angle dimension tolerance(L), According to GB/T1804-2000 medium M level control.		Material: Veneer	Parts name:BLDC Circulating PUMP
L<6	±0.1	L<10	±1°		P/N: 35x31.5x0.4
6≤L<30	±0.2	10≤L<50	±30'		Drawing No: 77110001
30≤L<120	±0.3	50≤L<120	±20'		
120≤L<400	±0.5	120≤L<400	±10'	Proportion	Weight (g)
400≤L<1000	±0.8	400≤	±5'	Edition:	
1000≤L	±1.2				
Design	李昌建 2012/11/3	Standardization		JIANMEN IDEAR-HANYU ELECTRICAL JOINT-STOCK CO.,LTD	
Drawing	李昌建 2012/11/3	Technology			
Audit	王红标 2012/11/3	Approval			

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