



1. Contents

1. Contents	2
2. Product BOM	3
3. Product Photo	4
4. Assembly Drawing	5
5. Specification & Dimension	6
● ASM 01	6
● ASM 02	7
● BASE 01	8
● FIN	9
● PIPE	10
● CLIP	11
● CLIP SCREW	12
● CPU SCREW	13
● CPU SPRING	14
● CPU WASHER	15
● CPU ERING	16
● COVER	17
● COVER SCREW 01	18
● COVER SCREW 02	19
● FAN WASHER	20
● FAN SCREW	21
● FAN LABEL	22
● PAD	23
● FAN	24
6. Packing	32

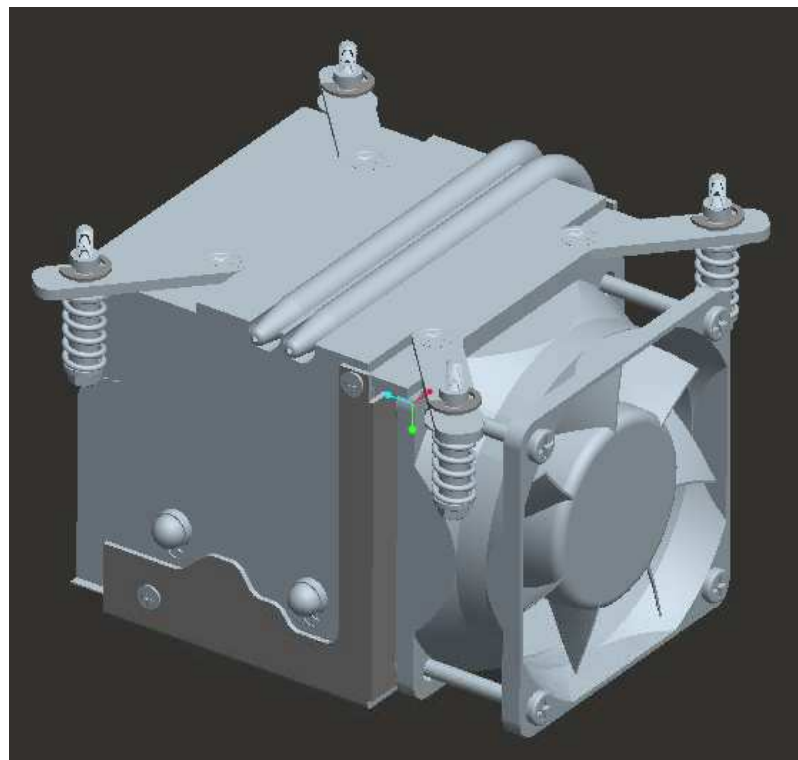
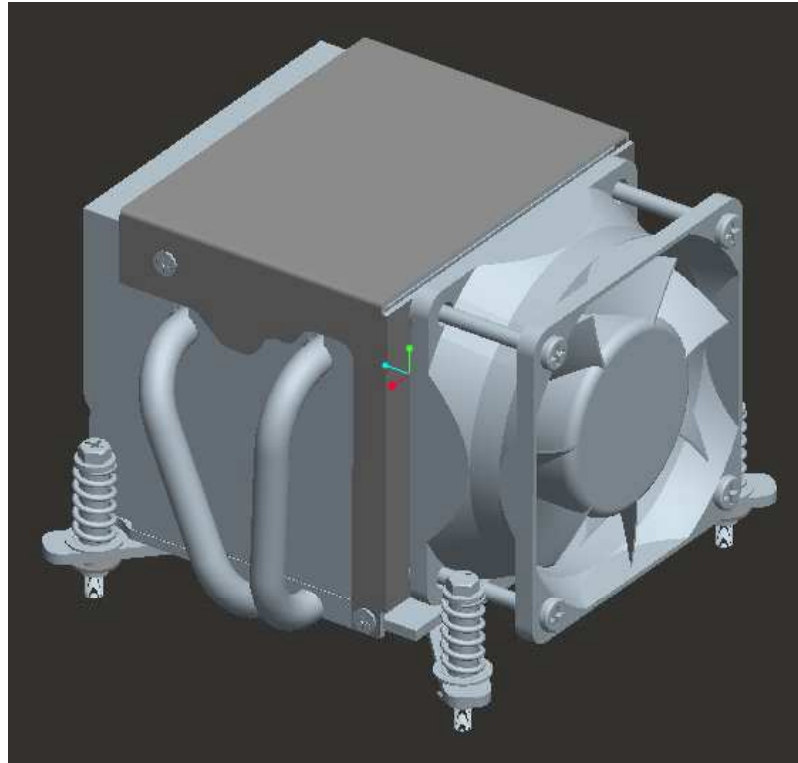


2. Product BOM

NO.	PART NO	PART NAME	QTY
1	600029360-GP	ASM 01	1
1.1	10410R052-ASM	ASM 02	1
1.1.1	10410R052-BASE	BASE	1
1.1.2	10410R052-FIN	FIN	1
1.1.3	10410R052-PIPE	PIPE	2
1.1.4	500006290-GP	低溫錫膏	
1.2	10410R052-CLIP	CLIP	2
1.3	150036090-GP	CLIP SCREW	4
1.4	150023080-GP	CPU SCREW	4
1.5	10410R052-SPRING	CPU SCREW	4
1.6	300011060-HF	SPU WASHER	4
1.7	300002012-GP	CPU ERING	4
1.8	10410R052-COVER	COVER	1
1.9	150036050-GP	COVER SCREW 01	2
1.10	150036080-GP	COVER SCREW 01	2
1.11	10410R052-WASHER	FAN WASHER	4
1.12	150000750-GP	FAN SCREW	4
1.13	359000530-GP3	FAN LABEL	1
1.14	10410R052-PAD	PAD	1
2	200020790-GP	FAN	1

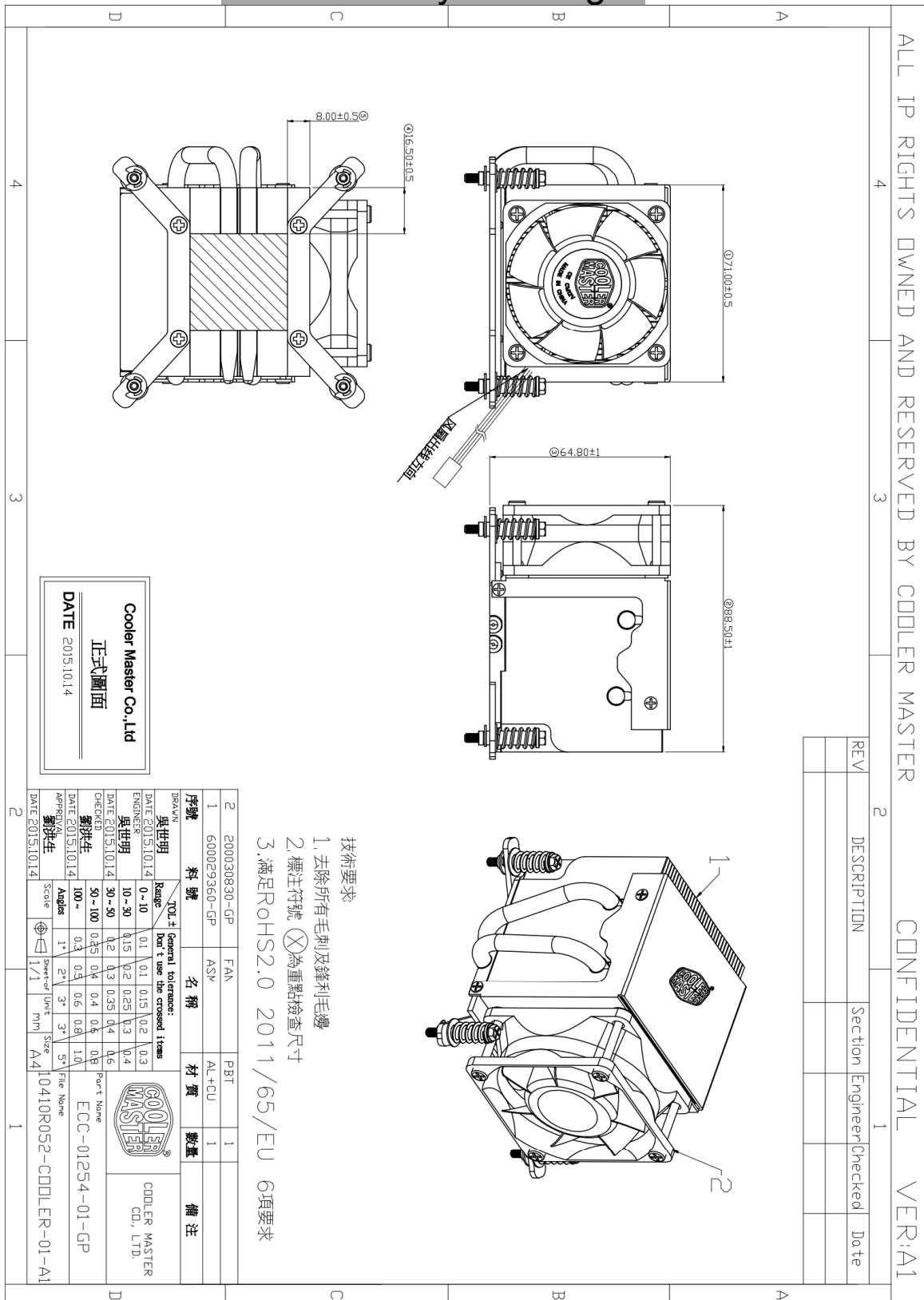


3. Product Photo



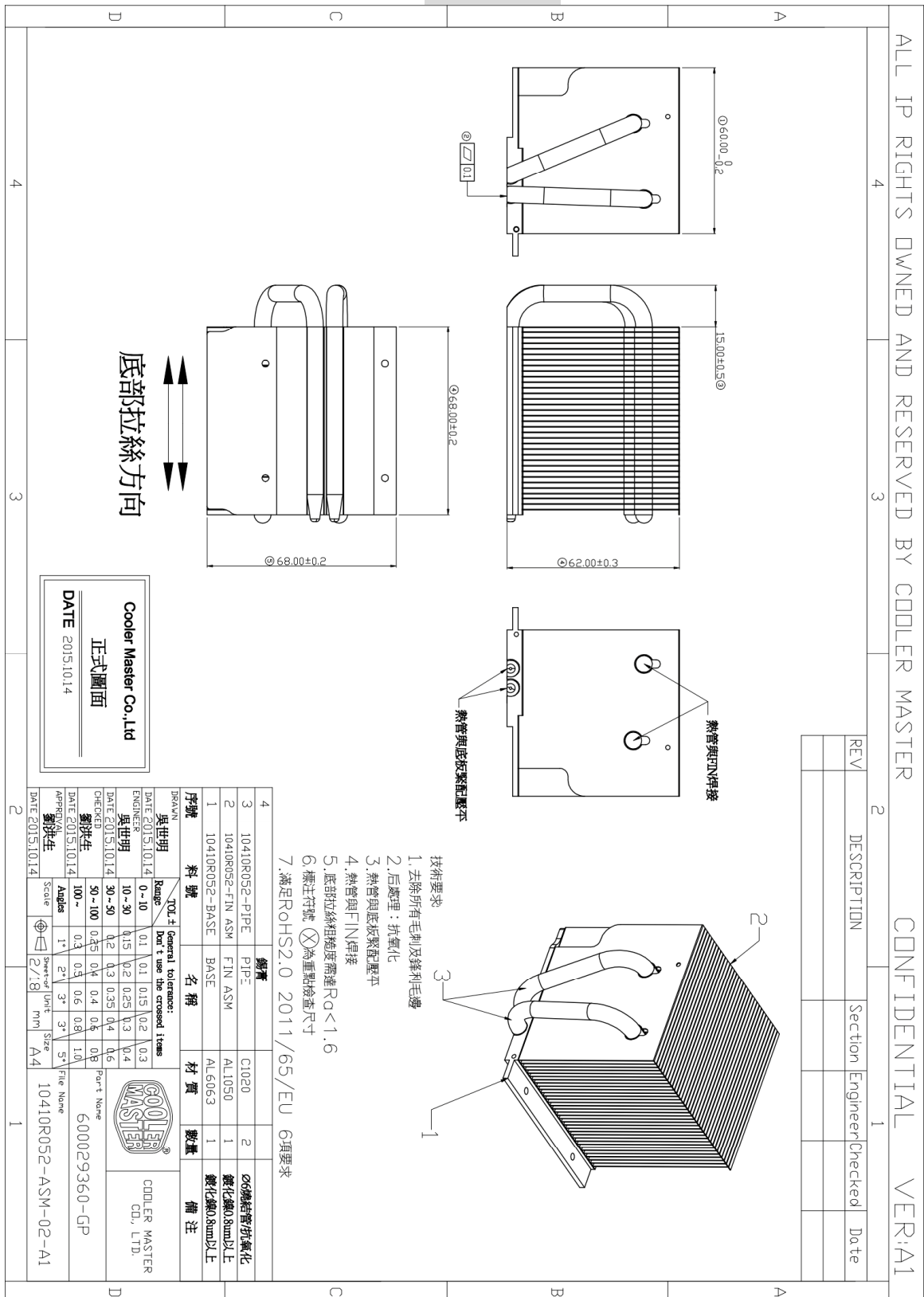


4.Assembly Drawing





ASM 02







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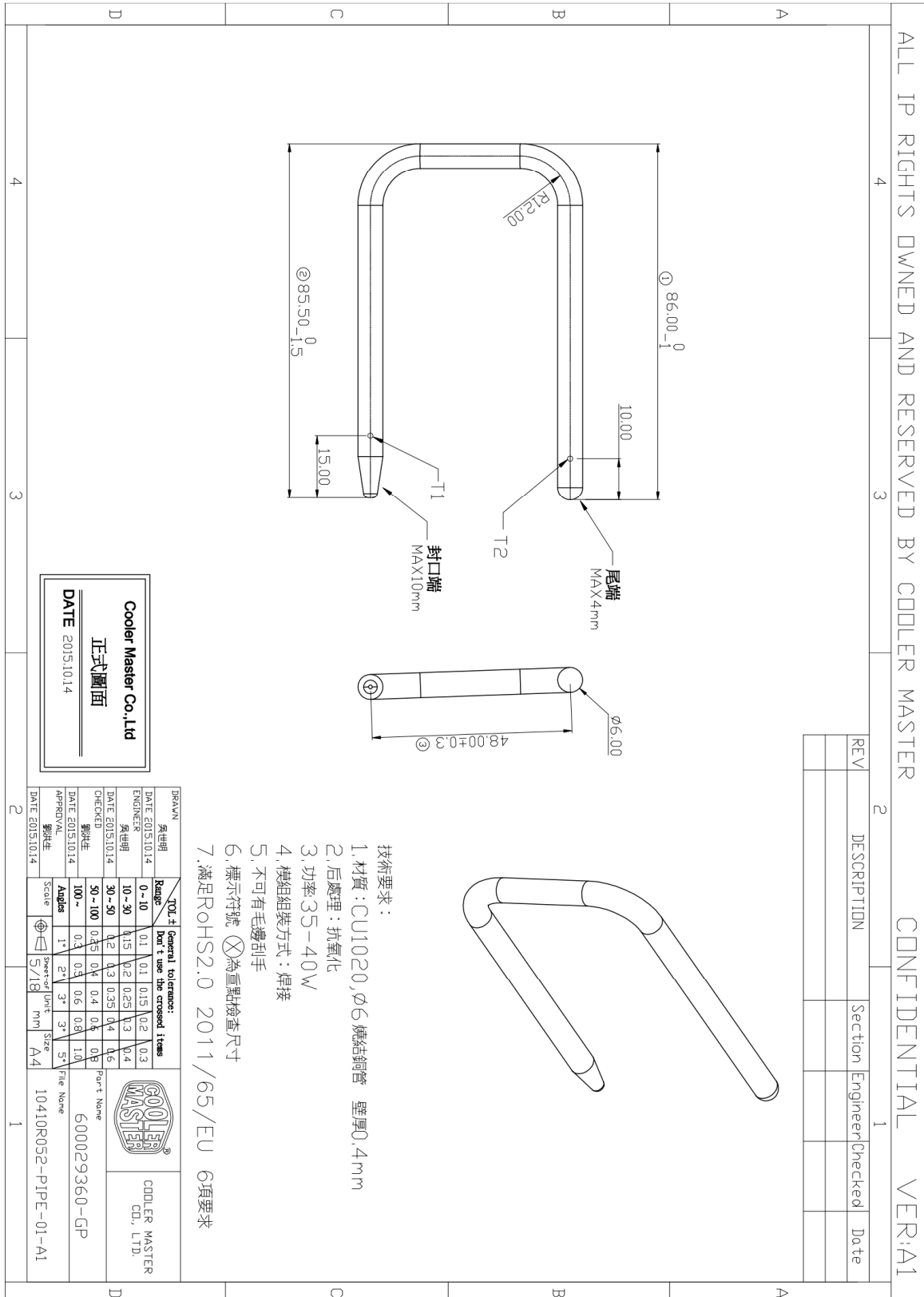
CONFIDENTIAL

VER: A1

4		3		2		1	
REV		DESCRIPTION		Section		Engineer/Checked	



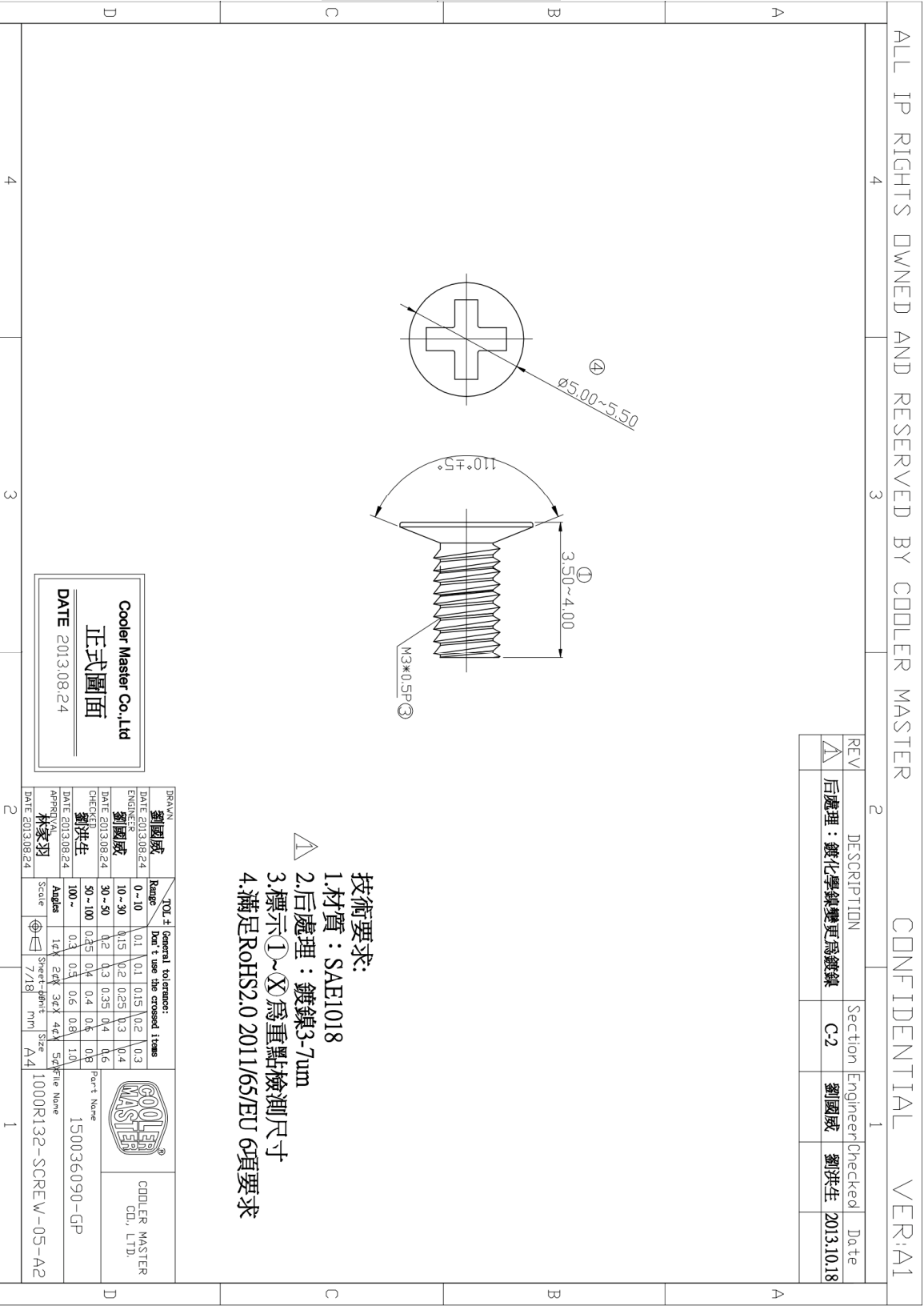
PIPE

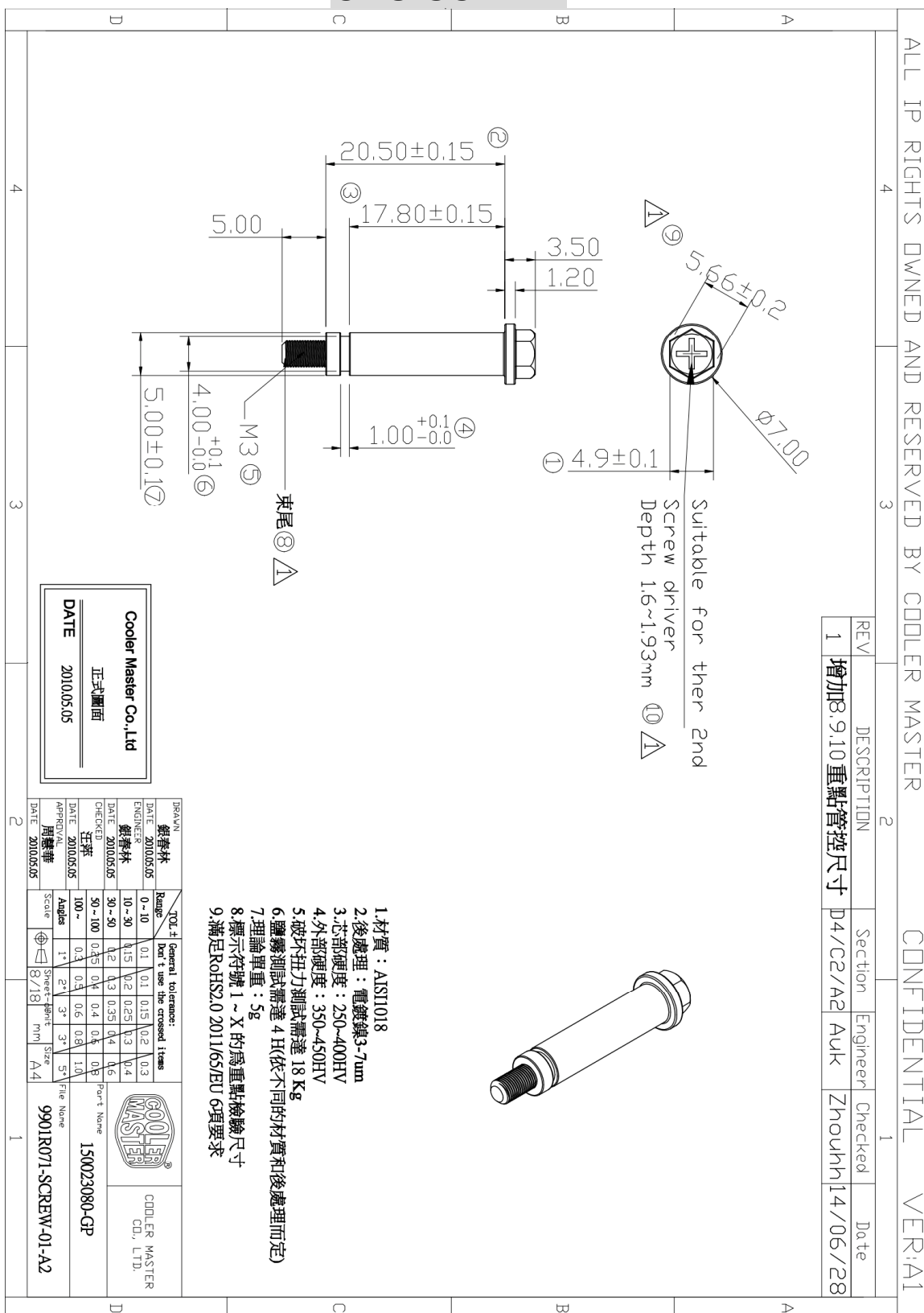


Page 11 / 32



CLIP SCREW





CPU SPRING

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VER: A1

REV	DESCRIPTION	Section	Engineer	Checked	Date

1

7.70±0.2

技術要求:

- 1.材質:琴鋼絲SWPB
- 2.線經: Ø1.2mm,左旋
- 3.後處理: 鍍鎳3-7um
- 4.有效圈數:3
- 5.總圈數:5
- 6.自由長度:14.5mm
- 7.磅數: 10.35LBF(往下壓縮 1.86mm)
- 8.兩端磨平方式
- 9.鹽霧測試需達 6H
- 10.K值:2.52 kgf/mm
- 11.標示符號(X)的為重點檢驗尺寸
- 12.滿足RoHS2.0 2011/65/EU 6項要求

2

14.50±0.3

Cooler Master Co.,Ltd

正式圖面

DATE 2015.10.14

DRAWN		TOL ±		General tolerance:		Bent t use the crossed		items		Part Name		Cooler Master	
DATE	ENGINEER	Range	0 ~ 10	0.1	0.1	0.15	0.2	0.3	0.4	DATE	ENGINEER	CD, LTD.	
2015.10.14	吳世明	10 ~ 30	0.15	0.2	0.25	0.3	0.4	0.5	0.6	2015.10.14	吳世明		
CHECKED		50 ~ 100	0.25	0.4	0.4	0.5	0.6	0.8	1.0	600029360-GP			
DATE		100 ~	0.3	0.5	0.6	0.8	1.0	1.5	2.0				
APPROVAL		Signature	1" 2"	3"	3"	5"	5"	5"	5"				
DATE		Scale	1/18	1/18	1/18	1/18	1/18	1/18	1/18				

4

3

2

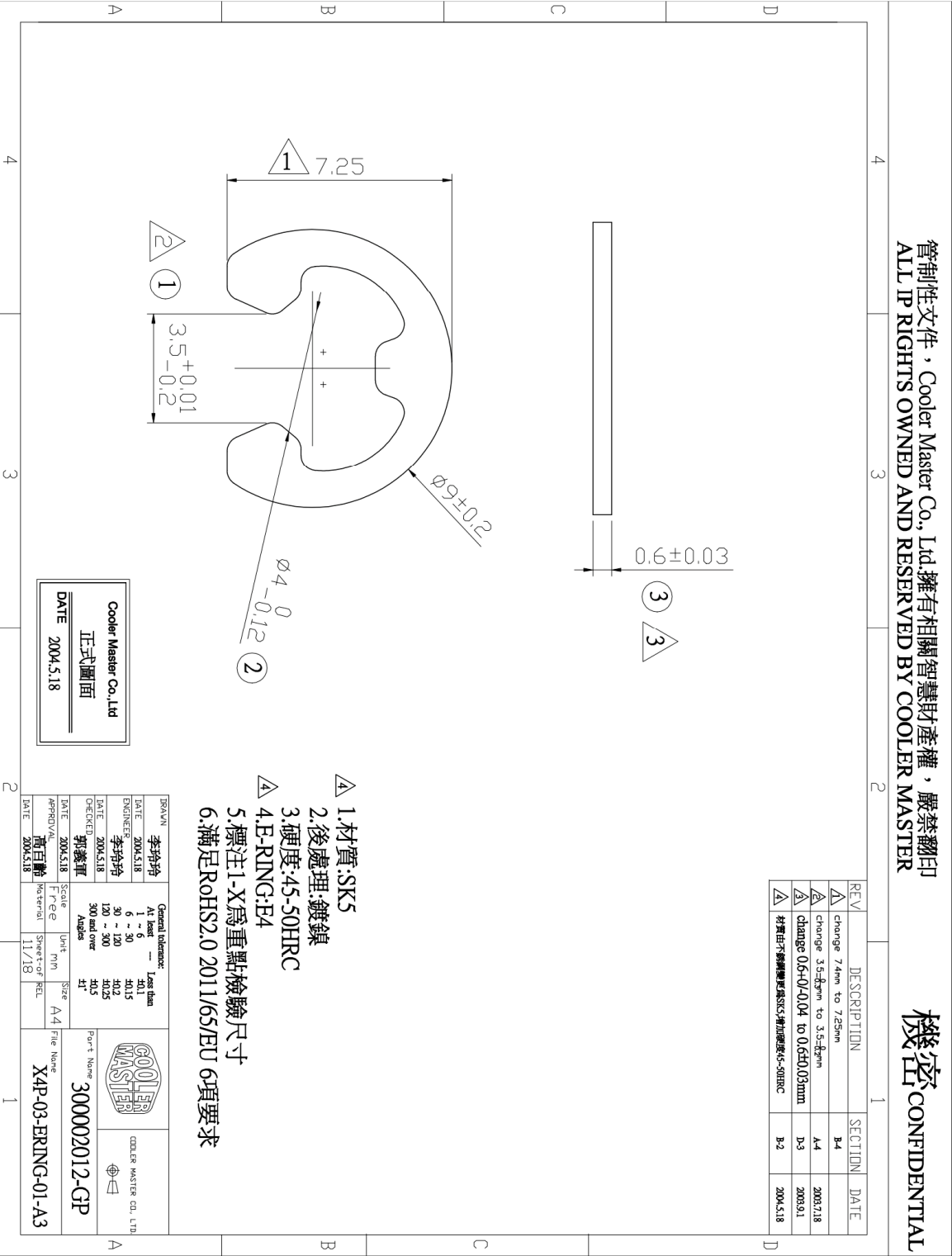
1



CPU ERING

管制性文件，Cooler Master Co., Ltd. 擁有相關智慧財產權，嚴禁翻印
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機密 CONFIDENTIAL





Page 17 / 32



COVER SCREW 01

ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER				CONFIDENTIAL				VER: A1	
4		3		2		1			
REV		DESCRIPTION		Section		Engineer/Checked		Date	
更新圖面資訊				C-2		劉國威		劉洪生 2013.10.17	

11.00~11.50

①

1.30±0.10

②

3.60~4.00

COOLER MASTER

CD, LTD.

150036050-GP

Part Name

150036050-GP

COOLER MASTER Co., Ltd

正式圖面

DATE 2013.08.24

DRAWN

劉國威

DATE 2013.08.24

Range

0~10

0.1

0.1

0.15

0.2

0.3

ENG

劉國威

DATE 2013.08.24

Range

10~30

0.15

0.2

0.25

0.3

0.4

DATE

2013.08.24

CHK

劉洪生

DATE 2013.08.24

Range

50~100

0.35

0.4

0.4

0.5

0.8

DATE

2013.08.24

APP

林家羽

DATE 2013.08.24

Scale

1:1

2:1

3:1

4:1

5:1

6:1

Sheet

13/18

mm

A4

TOL ±

General tolerance:

Don't use the crossed lines

Part Name

150036050-GP

1.材質：SAE1018

2.十一字槽

3.后處理：鍍鎳3-7um

4.標示①~②為重點檢測尺寸

5.滿足RoHS2.0 2011/65/EU 6項要求



COVER SCREW 02

ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER				CONFIDENTIAL				VER: A1	
4		3		2		1			
REV		DESCRIPTION		Section		Engineer		Checked	Date
△		后處理：鍍化學鍍變更爲鍍銀		C-2		劉國威		劉洪生	2013.10.18



FAN WASHER



FAN SCREW

ALL IP RIGHTS OWNED AND RESERVED BY COOLER MASTER		CONFIDENTIAL					
4		3		2		1	
REV	DESCRIPTION	Section	Engineer	Checked	Date		
①	M3-24T change to ø3-24T	B 3	賴品秀	黃文欽	2002.2.20		
②	RPK-FE-BKZ-32-A1 change to RPK-FE-BKZ-32-A2	D 1	賴品秀	黃文欽			
③	鍍黑鋅 change to 鍍黑	D 4	劉威	藍祥命	2005.11.17		
④	RPK-FE-BK-32-A2 change to HH0507062-SCRW-01-A3	D 1					
④	表面處理鍍黑改為鍍黑鋅	D 4	謝漢和	藍祥命	2006.03.23		
④	15000751-02-A15000750-02	D 1					

標準 JIS 標準、自攻螺絲
材質 C1010 (GP 環保材質)
③ 表面處理 鍍黑鋅
① ~ ④ 為重要標注尺寸
滿足 RoHS2.0 2011/65/EU 6 項要求

Cooler Master Co., Ltd	
正式圖面	
DATE 2006.03.23	

DRAWN 賴品秀 DATE 2004.11.15	General tolerance At least --- Less than
ENGINEER 謝漢和 DATE 2006.03.23	0 ~ 10 ±0.1 10 ~ 50 ±0.15 50 ~ 100 ±0.2 100 ~ 150 ±0.25 150 ~ 200 ±0.3
CHECKED 周繼華 DATE 2006.03.23	16/18
APPROVAL 藍祥命 DATE 2006.03.23	Scale

Part Name A150000750-GP	COOLER MASTER CO., LTD.
----------------------------	----------------------------



FAN

DELTA ELECTRONICS, INC.
252, SHANG YING ROAD, KUEI SAN
TAOYUAN HSIEN 333, TAIWAN, R. O. C.

TEL : 886-(0)3-3591968
FAX : 886-(0)3-3591991

SPECIFICATION FOR APPROVAL *****

Customer:

Description:	DC FAN	
Customer P/N:		REV:
Delta Model NO.:	AFC0612D-CD65	Delta Safety Model NO.: AFC0612D
Sample Rev:	05	Issue NO:
Sample Issue Date:		Quantity:

1. SCOPE:

THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THE DC BRUSHLESS AXIAL FLOW FAN. THE FAN MOTOR IS WITH SINGLE PHASE AND FOUR POLES.

2. CHARACTERS:

ITEM	DESCRIPTION
RATED VOLTAGE	12 VDC
OPERATION VOLTAGE	10.8 - 13.2 VDC
INPUT CURRENT	0.43 (MAX. 0.60) A SAFETY CURRENT ON LABEL 0.60A
INPUT POWER	5.16 (MAX. 7.20) W
SPEED	6800±10% R.P.M.
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	1.086 (MIN. 0.977) M ³ /MIN. 38.35 (MIN. 34.50) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	13.81 (MIN. 11.18) mmH ₂ O 0.544 (MIN. 0.441) inchH ₂ O
ACOUSTICAL NOISE (AVG.)	46.5 (MAX. 50.5) dB-A
INSULATION TYPE	UL: CLASS A

(continued)

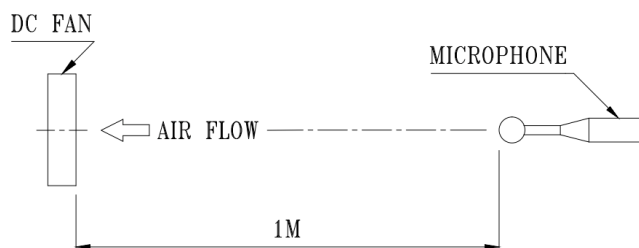


PART NO:

DELTA MODEL: AFC0612D-CD65

INSULATION STRENGTH	10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND (+) TERMINAL)
DIELECTRIC STRENGTH	5 mA MAX. AT 500 VAC 50/60 Hz ONE MINUTE, (BETWEEN FRAME AND (+) TERMINAL)
EXTERNAL COVER	OPEN TYPE
LIFE EXPECTANCE (AT LABEL VOLTAGE)	70,000 HOURS CONTINUOUS OPERATION AT 40 °C WITH 15 ~ 65 %RH.
ROTATION	CLOCKWISE VIEW FROM NAME PLATE SIDE
OVER CURRENT SHUT DOWN	THE CURRENT WILL SHUT DOWN WHEN LOCKING ROTOR.
LEAD WIRE	UL 10368 AWG #26 BLACK WIRE: NEGATIVE(-) RED WIRE: POSITIVE(+) YELLOW WIRE: TACHOMETER OUTPUT(F00) BLUE WIRE: SPEED CONTROL (PWM)

- NOTES: 1. ALL READINGS ARE MEASURED AFTER STABLY WARMING UP THROUGH 10 MINUTES.
2. STANDARD AIR PROPERTY IS AIR AT (Td) 25°C TEMPERATURE, (RH) 65% RELATIVE HUMIDITY, AND (Pb) 760 mmHg BAROMETRIC PRESSURE.
3. THE VALUES WRITTEN IN PARENS , (), ARE LIMITED SPEC.
4. ACOUSTICAL NOISE MEASURING CONDITION:



NOISE IS MEASURED AT RATED VOLTAGE IN FREE AIR IN ANECHOIC CHAMBER WITH B & K SOUND LEVEL METER WITH MICROPHONE AT A DISTANCE OF ONE METER FROM THE FAN INTAKE.



PART NO: 1323-00GV000

DELTA MODEL: AFC0612D-CD65

3. MECHANICAL:

3-1. DIMENSIONS ----- SEE DIMENSIONS DRAWING

3-2. FRAME ----- PLASTIC UL: 94V-0
(THE CONTACT OF HALOGEN LESS THAN 1500 PPM FOR USING EDX ...ETC)

3-3. IMPELLER ----- PLASTIC UL: 94V-0
(THE CONTACT OF HALOGEN LESS THAN 1500 PPM FOR USING EDX ...ETC)

3-4. BEARING SYSTEM ----- TWO BALL BEARINGS

3-5. WEIGHT ----- 70 GRAMS

4. ENVIRONMENTAL:

4-1. OPERATING TEMPERATURE ----- -10 TO +70 DEGREE C

4-2. STORAGE TEMPERATURE ----- -40 TO +75 DEGREE C

4-3. OPERATING HUMIDITY ----- 5 TO 90 % RH

4-4. STORAGE HUMIDITY ----- 5 TO 95 % RH

5. PROTECTION:

5-1. LOCKED ROTOR PROTECTION

IMPEDANCE OF MOTOR WINDING PROTECTS MOTOR FROM FIRE IN 96 HOURS OF LOCKED ROTOR CONDITION AT THE RATED VOLTAGE.

5-2. POLARITY PROTECTION

BE CAPABLE OF WITHSTANDING IF REVERSE CONNECTION FOR POSITIVE AND NEGATIVE LEADS.

6. RE OZONE DEPLETING SUBSTANCES:

6-1. NO CONTAINING PBBs, PBB0s, CFCs, PBBEs, PBDPEs AND HCFCs.

7. PRODUCTION LOCATION

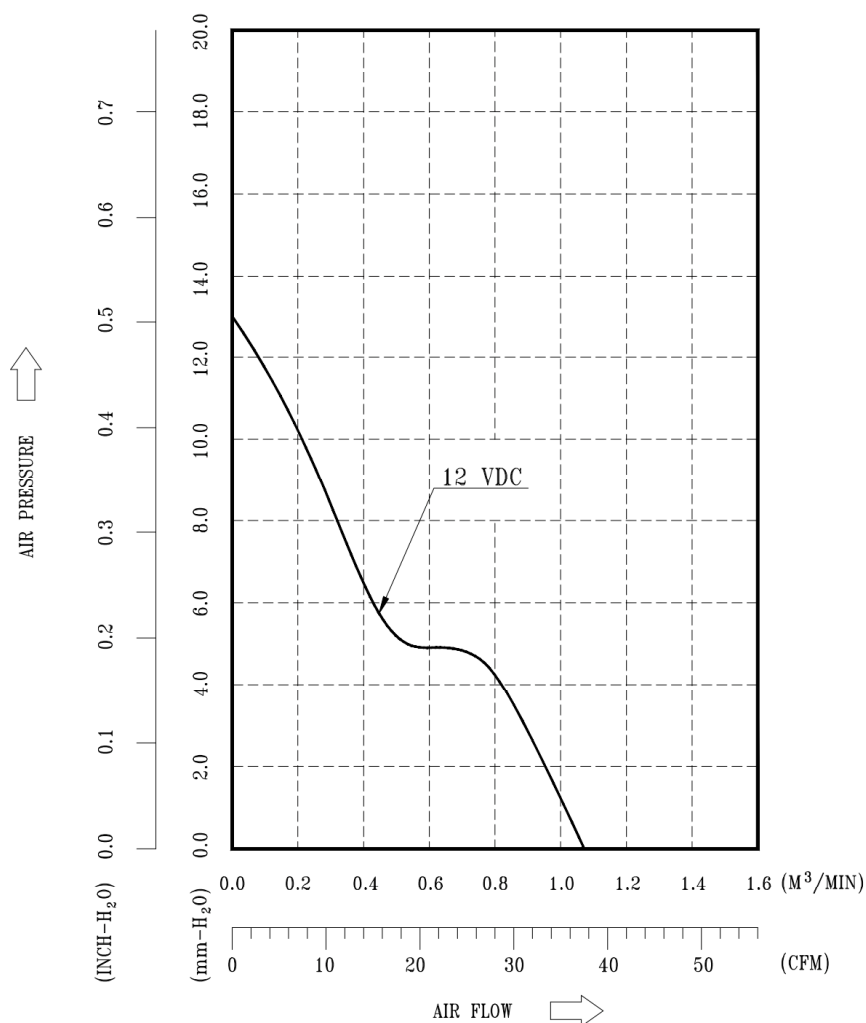
7-1. PRODUCTS WILL BE PRODUCED IN CHINA OR THAILAND



PART NO: 1323-00GV000

DELTA MODEL: AFC0612D-CD65

8. P & Q CURVE:



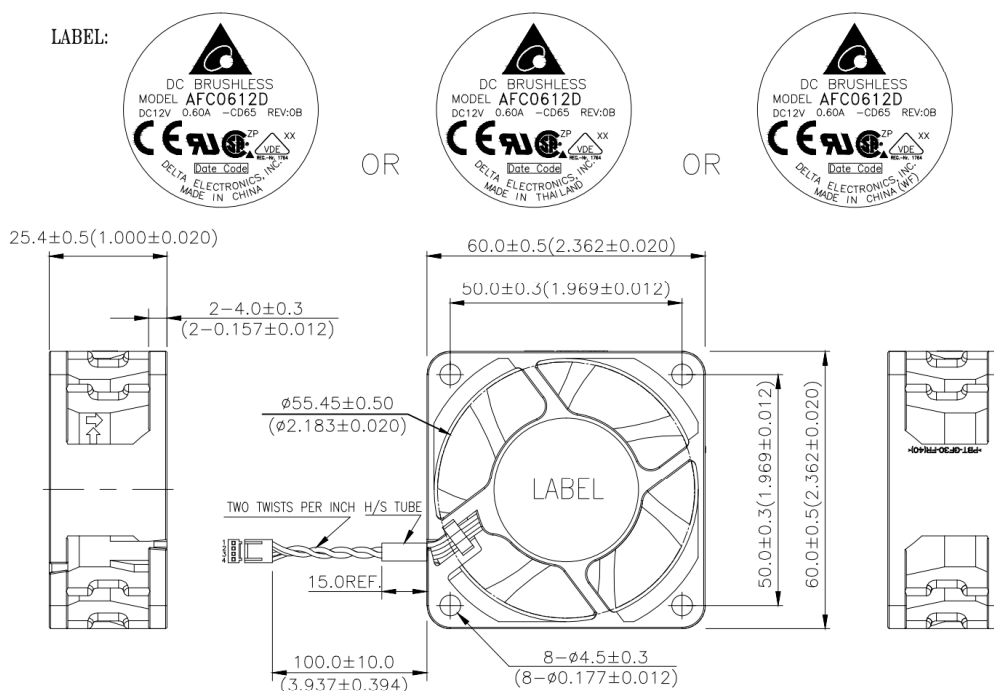
* TEST CONDITION: INPUT VOLTAGE ----- OPERATION VOLTAGE
TEMPERATURE ----- ROOM TEMPERATURE
HUMIDITY ----- 65%RH



PART NO: 1323-00GV000

DELTA MODEL: AFC0612D-CD65

9. DIMENSION DRAWING:



NOTE:

1. CABLE WIRE UL10368 AWG #26
PIN 1 : BLACK WIRE-----(-)
PIN 2 : RED WIRE-----(+)
PIN 3 : YELLOW WIRE----- (F00)
PIN 4 : BLUE WIRE----- (PWM)
2. CONNECTOR:
HOUSING : JWT A2543H00-4PQ(BRICK RED) OR EQUIVALENT
TERMINAL : JWT A2543TOP-B5e OR EQUIVALENT
INNER PLATING(Ni) : 50μ"
OUTER PLATING(Tin) : 100μ"
3. THE MATERIAL/PART/ASSEMBLY SHOULD COMPLY WITH "HP GSE HX-00011-00 REV.Q" FOR ENVIRONMENT-RESTRICTED SUBSTANCE
4. H/S TUBE: φ2.5*0.25 125°C 600V BLACK
5. BFR/PVC/CFR FREE REQUIREMENT SHOULD COMPLY WITH "HP GSE 011-1 SECTION 3.15 REV.N"
6. ROHS 2.0 REQUIREMENT SHOULD COMPLY WITH "HP ROHS 2 COMPLIANCE SPECIFICATION REV.C1"
7. THE RESIN OF FRAME AND IMPELLER IS PBT

UNIT: mm(INCH)

A00

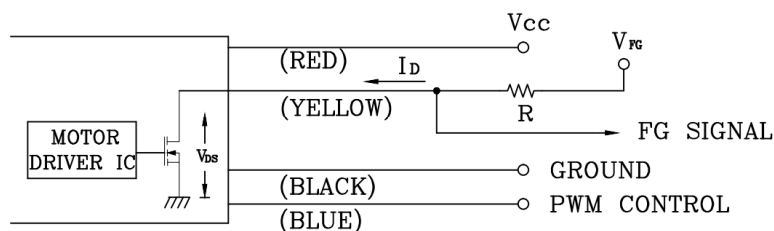


PART NO: 1323-00GV000

DELTA MODEL: AFC0612D-CD65

10. FREQUENCY GENERATOR (FG) SIGNAL:

10-1. OUTPUT CIRCUIT - OPEN DRAIN MODE:



CAUTION: THE FG SIGNAL LEAD WIRE MUST BE KEPT AWAY FROM
" + " LEAD WIRE & " - " LEAD WIRE.

10-2. SPECIFICATION:

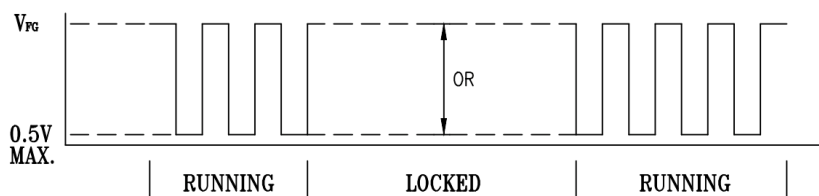
V_{DS} (LINEAR)=0.5V MAX.

V_{FG} =5.0V TYP. (V_{CC} MAX.)

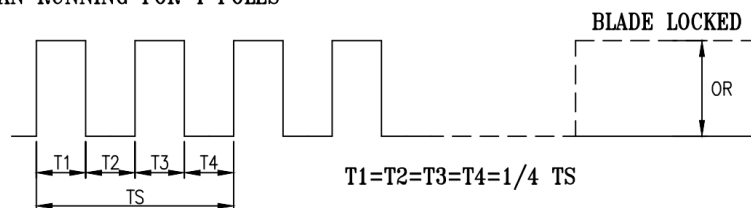
I_D =5mA MAX.

$R \geq V_{FG} / I_D$

10-3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES



$N=R.P.M$

$TS=60/N(SEC)$

*VOLTAGE LEVEL AFTER BLADE LOCKED

*4 POLES

A00

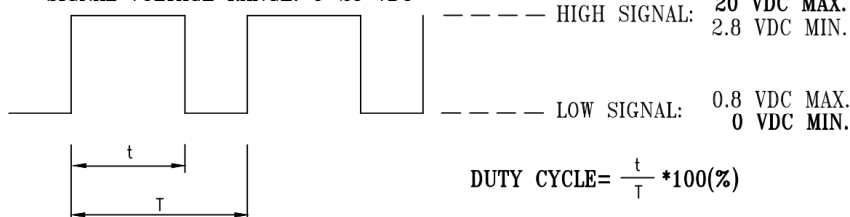


PART NO: 1323-00GV000

DELTA MODEL: AFC0612D-CD65

11. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~20 VDC



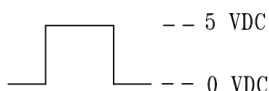
- THE PREFERRED OPERATING POINT FOR THE FAN IS 25K HZ.
- AT 100% DUTY CYCLE, THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- AT 0~20% DUTY CYCLE, THE ROTOR WILL SPIN AT MINIMUM SPEED.
- WITH CONTROL SIGNAL LEAD DISCONNECTED, THE FAN WILL SPIN AT MAXIMUM SPEED.

12. SPEED VS PWM CONTROL SIGNAL:

TEST CONDITION : AT 25°C, VCC=12VDC & PWM SIGNAL AS FOLLOW

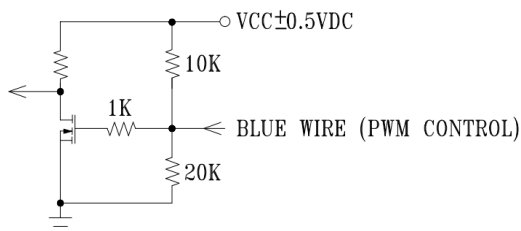
DUTY CYCLE (%)	SPEED R.P.M.	CURRENT (A) TYP.
100	6800±10%	0.43
75	5400±10%	0.22
50	3300±10%	0.07
0~20	750±300	0.03

* PWM SIGNAL
PWM FREQUENCY = 25KHz



- MIN. START DUTY CYCLE : 30%.
WHEN DUTY CYCLE IS SET FOR MORE THAN 30%, THE FAN WILL BE ABLE TO START FROM A DEAD STOP.

13. PWM CONTROL LEAD WIRE INPUT IMPEDANCE:





Application Notice

1. Delta will not guarantee the performance of the products if the application condition falls outside the parameters set forth in the specification.
2. A written request should be submitted to Delta prior to approval if deviation from this specification is required.
3. Please exercise caution when handling fans. Damage may be caused when pressure is applied to the impeller, if the fans are handled by the lead wires, or if the fan was hard-dropped to the production floor.
4. Except as pertains to some special designs, there is no guarantee that the products will be free from any such safety problems or failures as caused by the introduction of powder, droplets of water or encroachment of insect into the hub.
5. The above-mentioned conditions are representative of some unique examples and viewed as the first point of reference prior to all other information.
6. It is very important to establish the correct polarity before connecting the fan to the power source. Positive (+) and Negative (-). Damage may be caused to the fans if connection is with reverse polarity, if there is no foolproof method to protect against such error specifically mentioned in this spec.
7. Delta fans without special protection are not suitable where any corrosive fluids are introduced to their environment.
8. Please ensure all fans are stored according to the storage temperature limits specified. Do not store fans in a high humidity environment. We highly recommend performance testing is conducted before shipping, if the fans have been stored over 6 months.
9. Not all fans are provided with the Lock Rotor Protection feature. If you impair the rotation of the impeller for the fans that do not have this function, the performance of those fans will lead to failure.
10. Please be cautious when mounting the fan. Incorrect mounting of fans may cause excess resonance, vibration and subsequent noise.
11. It is important to consider safety when testing the fans. A suitable fan guard should be fitted to the fan to guard against any potential for personal injury.
12. Except where specifically stated, all tests are carried out at room (ambient) temperature and relative humidity conditions of 25°C, 65% RH. The test value is only for fan performance itself.
13. Be certain to connect an “4.7μF or greater” capacitor to the fan externally when the application calls for using multiple fans in parallel, to avoid any unstable power.

6. Packing

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CONFIDENTIAL VER:A1

4		3	2	1	
REV	DESCRIPTION	Section	Engineer	Checked	Date

packages for each carton			
Part NO.	Part name	Dimension(mm)	Q'ty
TRAY	A:10433A-GP3	110*10*25.3	1/1
BOX	A:10047A-GP3	114*114*85	1/1
Partition	A080035A	455*345*3	3/24
Carton	ECC-01254-01-GP70*355*199	1/24	4

DRAWN		TOL ±		General tolerance:		Part Name		Cooler Master Co., Ltd.	
DATE	2016.11.14	Range	0 ~ 10	0.1	0.15	0.2	0.3	COOLER MASTER CO., LTD.	
ENGINEER	Kuroi, Taro	10 ~ 30	0.15	0.2	0.25	0.3	0.4		
DATE	2016.11.14	30 ~ 50	0.2	0.3	0.35	0.4	0.5		
CHECKED	Kohno, Yu	50 ~ 100	0.25	0.4	0.4	0.6	0.8		
DATE	2016.11.14	100 ~	0.3	0.5	0.6	1.0	1.0		
APPROVAL	Carton	Scale	1"	2"	3"	4"	5"		
DATE	2016.11.14	Shrink Unit	1/1	mm	mm	mm	mm		
Packaging-01-A1		A4							

Note:
Pallet dimension is 107(L)x100(W)x12.0(H)cm
Total dimension is 107(L)x100(W)x91.6(H)cm
Total 24pcs Heatsinks in one carton
6 cartons/layer, 4 layers
Total coolers unit is 576 PCS

Carton dimension: 147.0cm*W35.5cm*H19.9cm