



# Cooler Master Co., Ltd.

TEL: +86 (752)2677320

FAX : +86 (752)2677350

www.cooler-master.com.cn

## Product Data Sheets

Customer : STD

Part No. : CPU Cooler

CoolerMaster Model No. : S2N-6FMHS-I5-GP

Edition: A1

Issued Date: 2010/08/03

Revision History :			
Date of Release	Revision No.	Description	
Customer		Cooler Master	
Approved by		Approved by	Checked by
		Tom_Zhou	Zero
Date:		Date:2010/08/03	Date:2010/08/03
			Drafted by
			Sam_Zheng
			Date:2010/08/03



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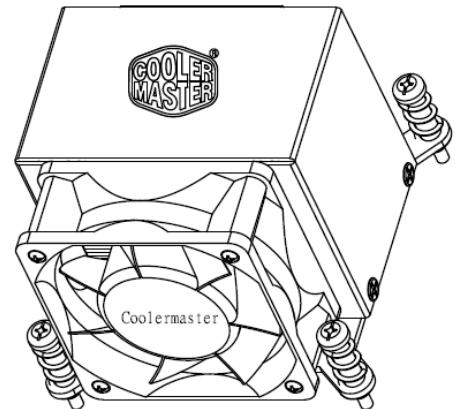
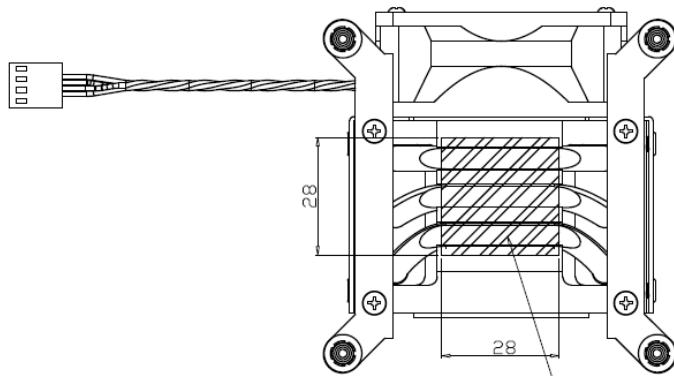
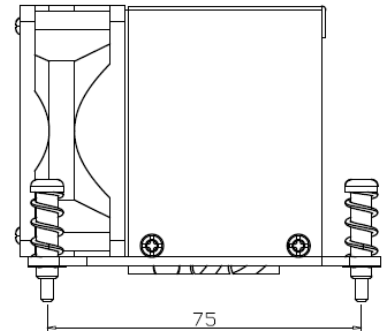
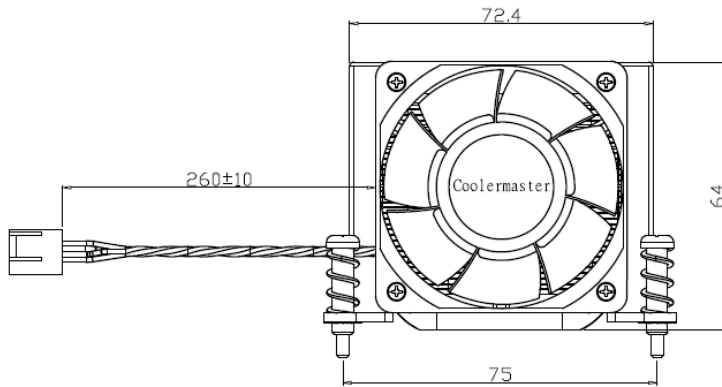
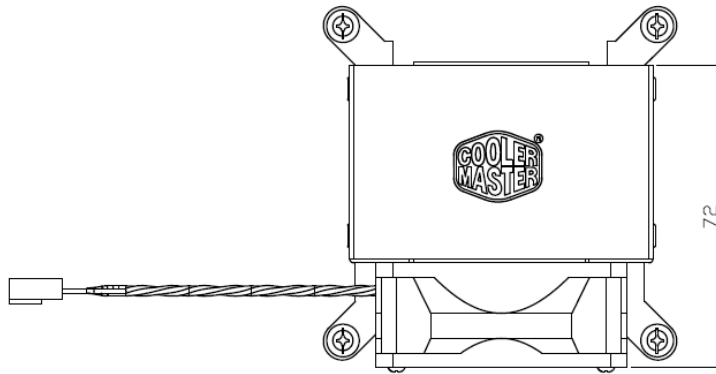


## 1. Whole Photo





## 2. Whole set Dimension



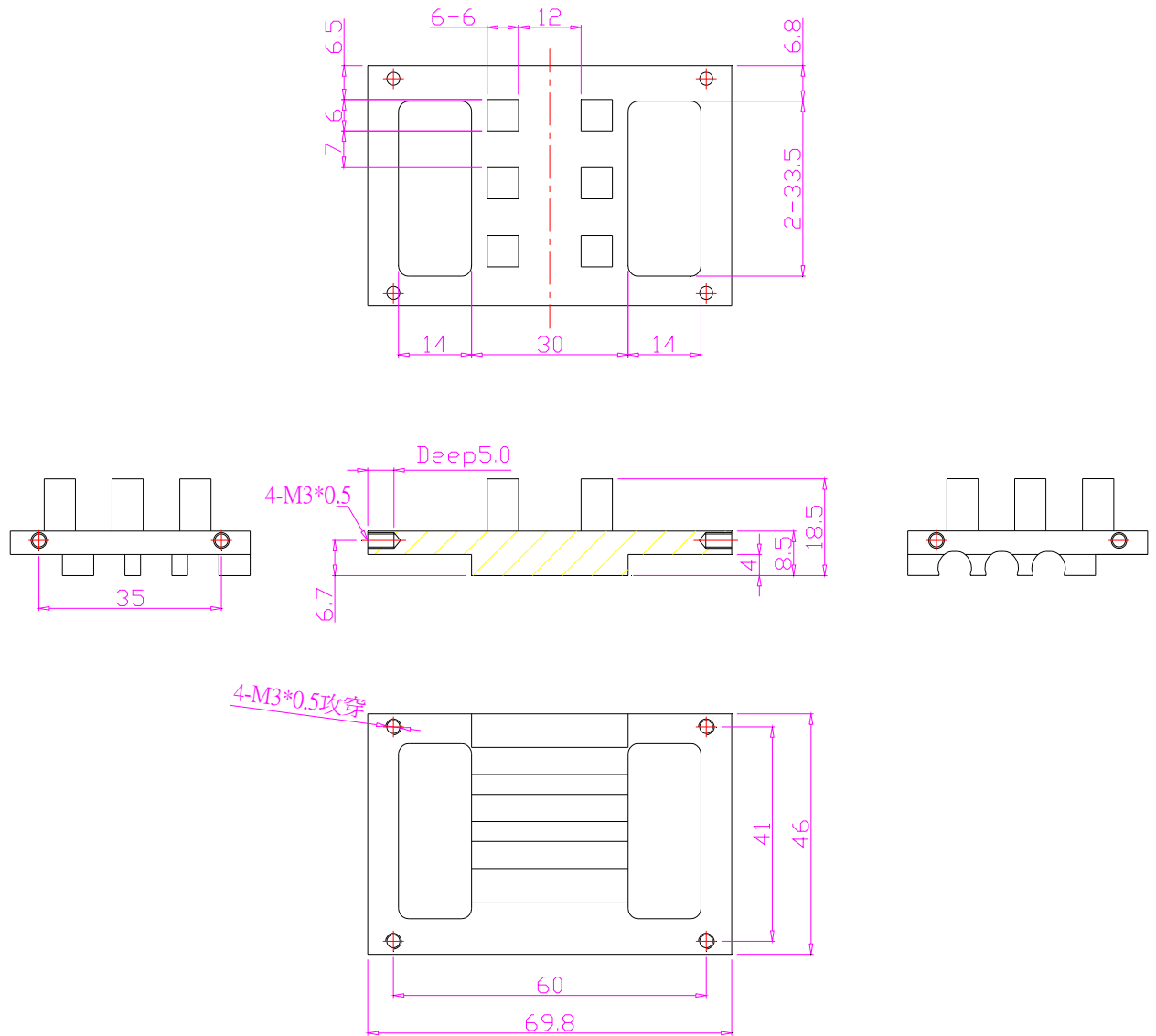
BN-G560  
28\*28\*0.1-0.2 厚

General Dimension Tolerances (Unit : mm )		
0 — 30		± 0.1
31 — 60		± 0.15
61 — 100		± 0.2
101 and Over		± 0.25
Angles		± 1°



## 3. Specification

### 3.01 AL Base



General Dimension Tolerances (Unit : mm )		
0	— 30	± 0.1
31	— 60	± 0.15
61	— 100	± 0.2
101	and Over	± 0.25
	Angles	± 1°



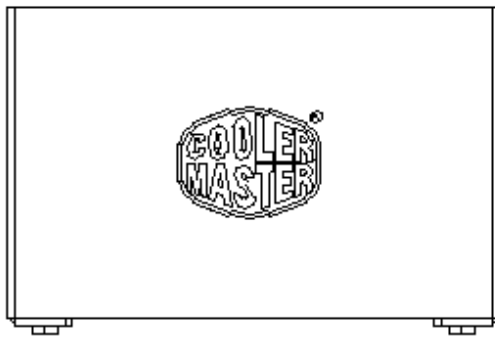
## 3.02 Cover

**Material :** Aluminum Alloy 1050

**Finished :** Original Anodize

Value	Al	Si	Fe	Cu	Mn	Mg	V	Others	Flatness
SPECIFIED VALUES	99.50	0.25Max	0.4Max	0.05Max	0.05Max	0.05Max	0.05Max	0.03Max	<0.1mm

**Chemistry Ingredient & Temper Designation :**



General Dimension Tolerances (Unit : mm )

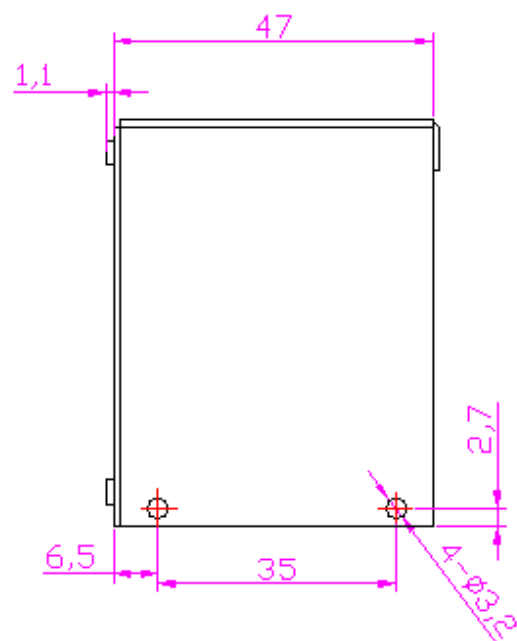
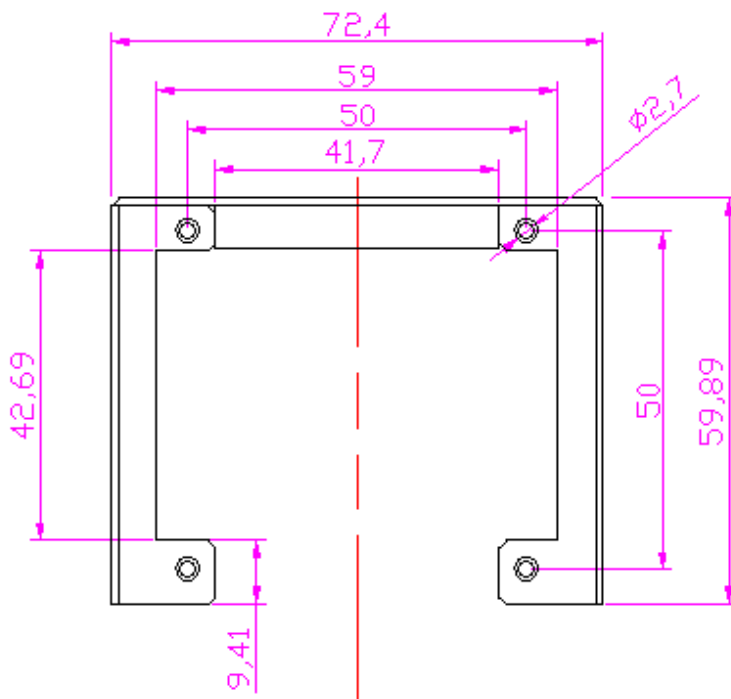
0 — 30 ± 0.1

31 — 60 ± 0.15

61 — 100 ± 0.2

101 and Over ± 0.25

Angles ± 1°





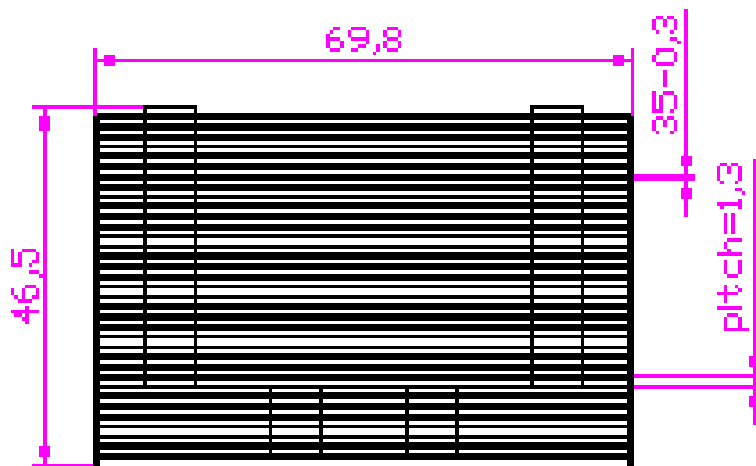
## 3.03 FIN

**Material :** Aluminum Alloy 1050

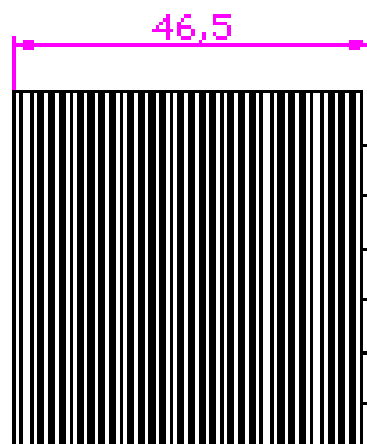
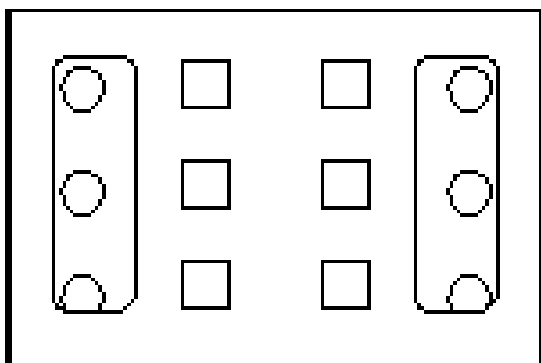
**Finished :** Original Anodize

**Chemistry Ingredient & Temper Designation :**

Value	Al	Si	Fe	Cu	Mn	Mg	V	Others	Flatness
SPECIFIED VALUES	99.50	0.25Max	0.4Max	0.05Max	0.05Max	0.05Max	0.05Max	0.03Max	<0.1mm



General Dimension Tolerances (Unit : mm )			
0	—	30	± 0.1
31	—	60	± 0.15
61	—	100	± 0.2
101	and Over		± 0.25
Angles			± 1°





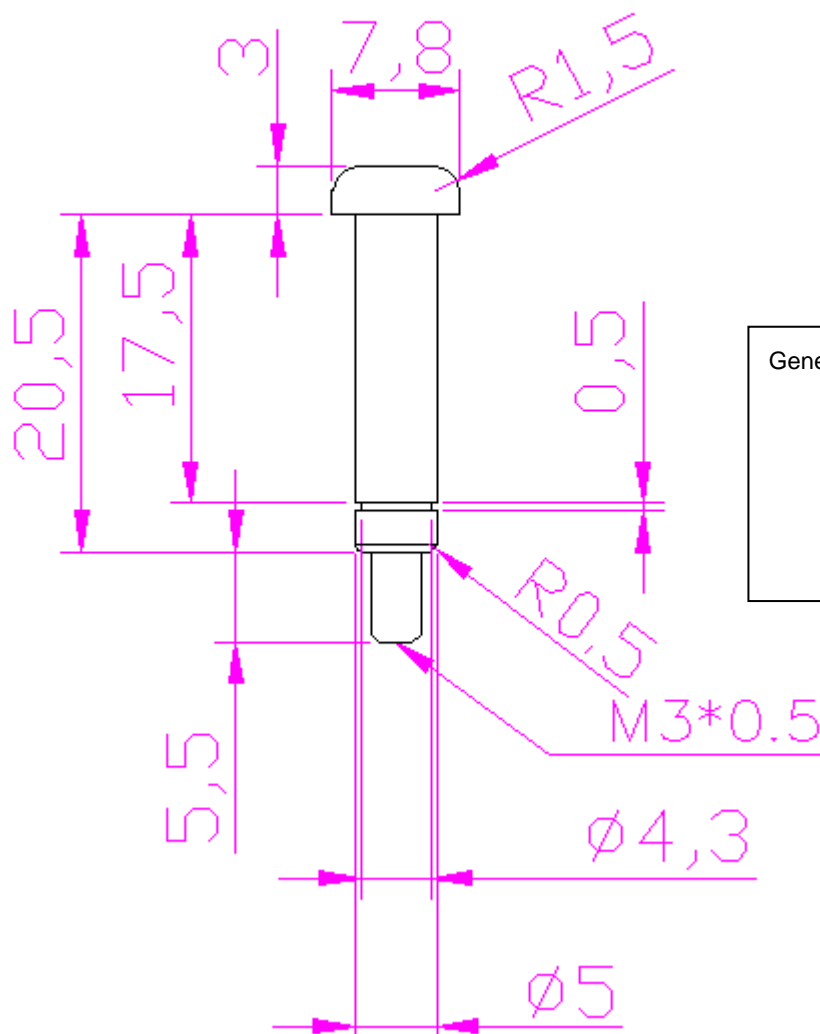
## 3.04 Screw 1

Material : AISI 1018

Finished : Nickel-Plated

Chemistry Ingredient Characteristics : (%)

Value	C	Mn	P	S	SI
SPECIFIED VALUES	0.16	0.78	0.24	0.8	0.2



### General Dimension Tolerances (Unit : mm )

0 — 30	$\pm 0.1$
31 — 60	$\pm 0.15$
61 — 100	$\pm 0.2$
101 and Over	$\pm 0.25$
Angles	$\pm 1^\circ$





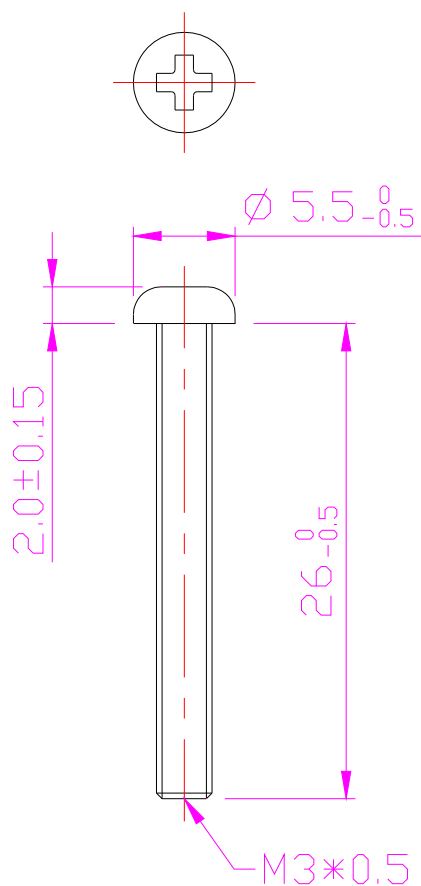
## 3.05 Screw 2

**Material :** AISI 1018

**Finished :** Nickel-Plated

**Chemistry Ingredient Characteristics : (%)**

Value	C	Mn	P	S	SI
SPECIFIED VALUES	0.16	0.78	0.24	0.8	0.2



0	—	30	$\pm 0.1$
31	—	60	$\pm 0.15$
61	—	100	$\pm 0.2$
101	~		$\pm 0.25$
Angles			$\pm 1^\circ$



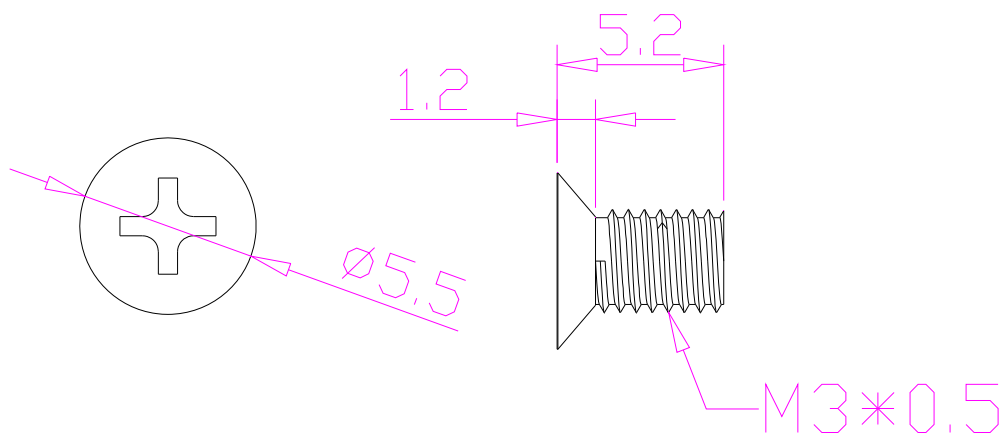
## 3.06 Screw 3

**Material :** AISI 1018

**Finished :** Nickel-Plated

**Chemistry Ingredient Characteristics : (%)**

Value	C	Mn	P	S	SI
SPECIFIED VALUES	0.16	0.78	0.24	0.8	0.2



General Dimension Tolerances (Unit : mm )			
0	—	30	$\pm 0.1$
31	—	60	$\pm 0.15$
61	—	100	$\pm 0.2$
101	~		$\pm 0.25$
Angles			$\pm 1^\circ$



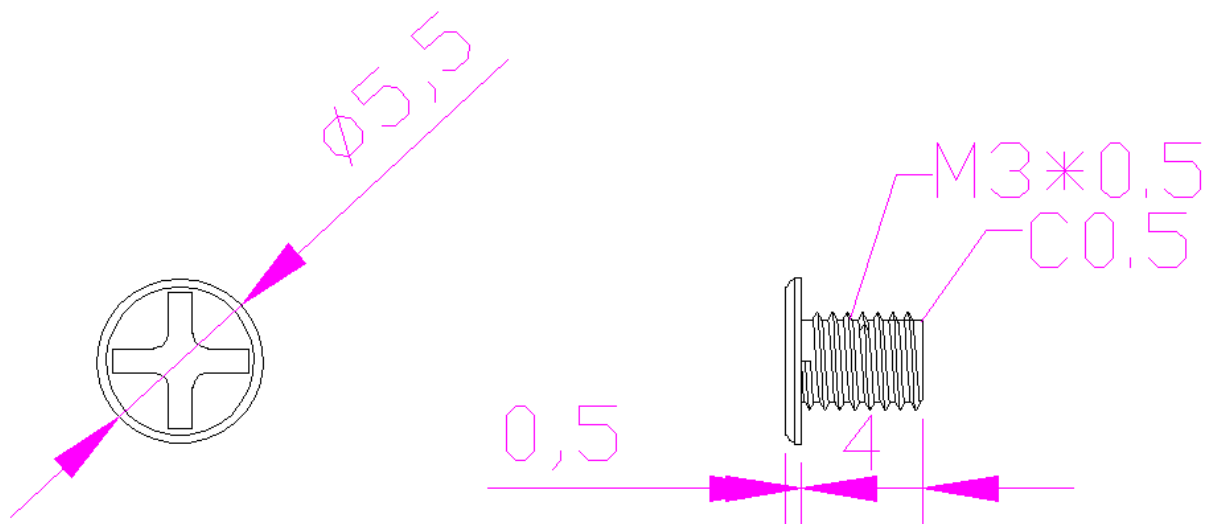
## 3.07 Screw 4

**Material :** AISI 1018

**Finished :** Nickel-Plated

**Chemistry Ingredient Characteristics : (%)**

Value	C	Mn	P	S	SI
SPECIFIED VALUES	0.16	0.78	0.24	0.8	0.2



General Dimension Tolerances (Unit : mm )			
0	—	30	± 0.1
31	—	60	± 0.15
61	—	100	± 0.2
101	~		± 0.25
Angles			± 1°

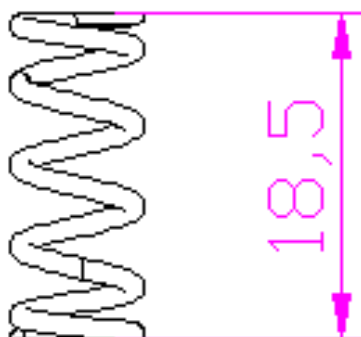
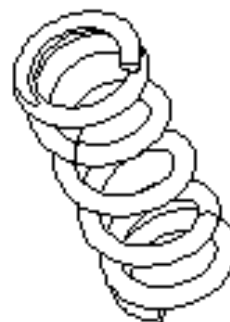
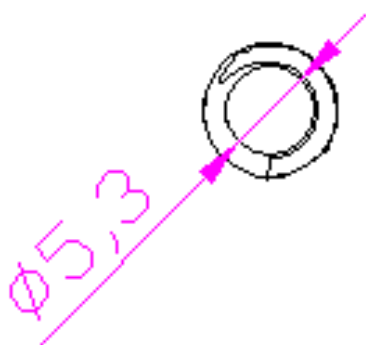


## 3.08 Spring

### Mechanical Characteristics :

Specification	Size
SWP	1.2mm

Finished : Nickel-Plated



### General Dimension Tolerances (Unit : mm )

0	—	30	± 0.1
31	—	60	± 0.15
61	—	100	± 0.2
101	~		± 0.25
Angles			± 1°

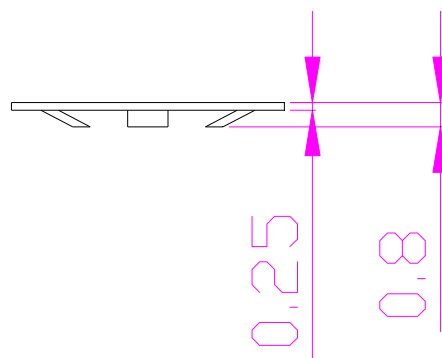
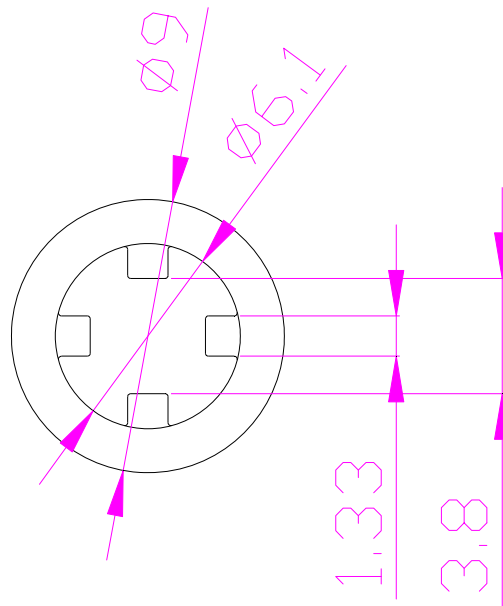


## 3.09 O-ring

Material : SK7

Finished: Nickel-Plated

Color: black

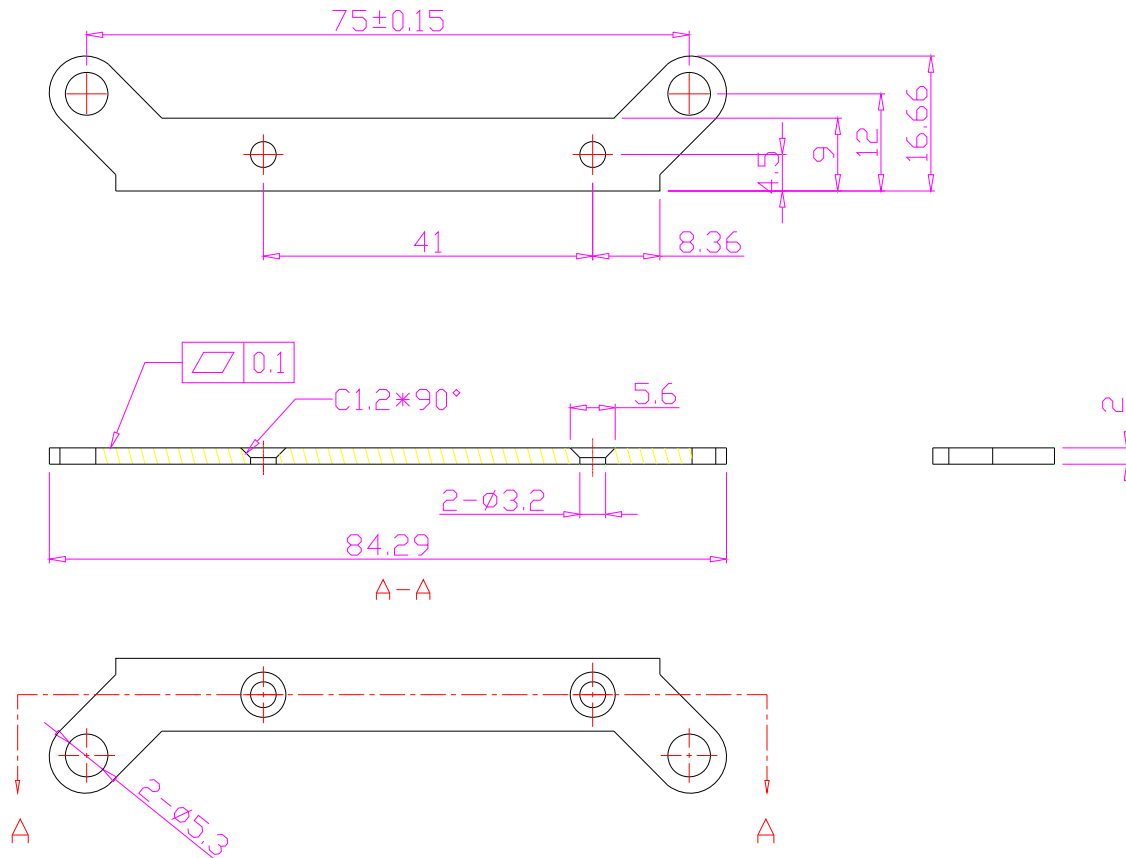


General Dimension Tolerances (Unit : mm )			
0	—	30	$\pm 0.1$
31	—	60	$\pm 0.15$
61	—	100	$\pm 0.2$
101	~		$\pm 0.25$
Angles			$\pm 1^\circ$



## 3.10 FootRack-01

Material : SUS 304

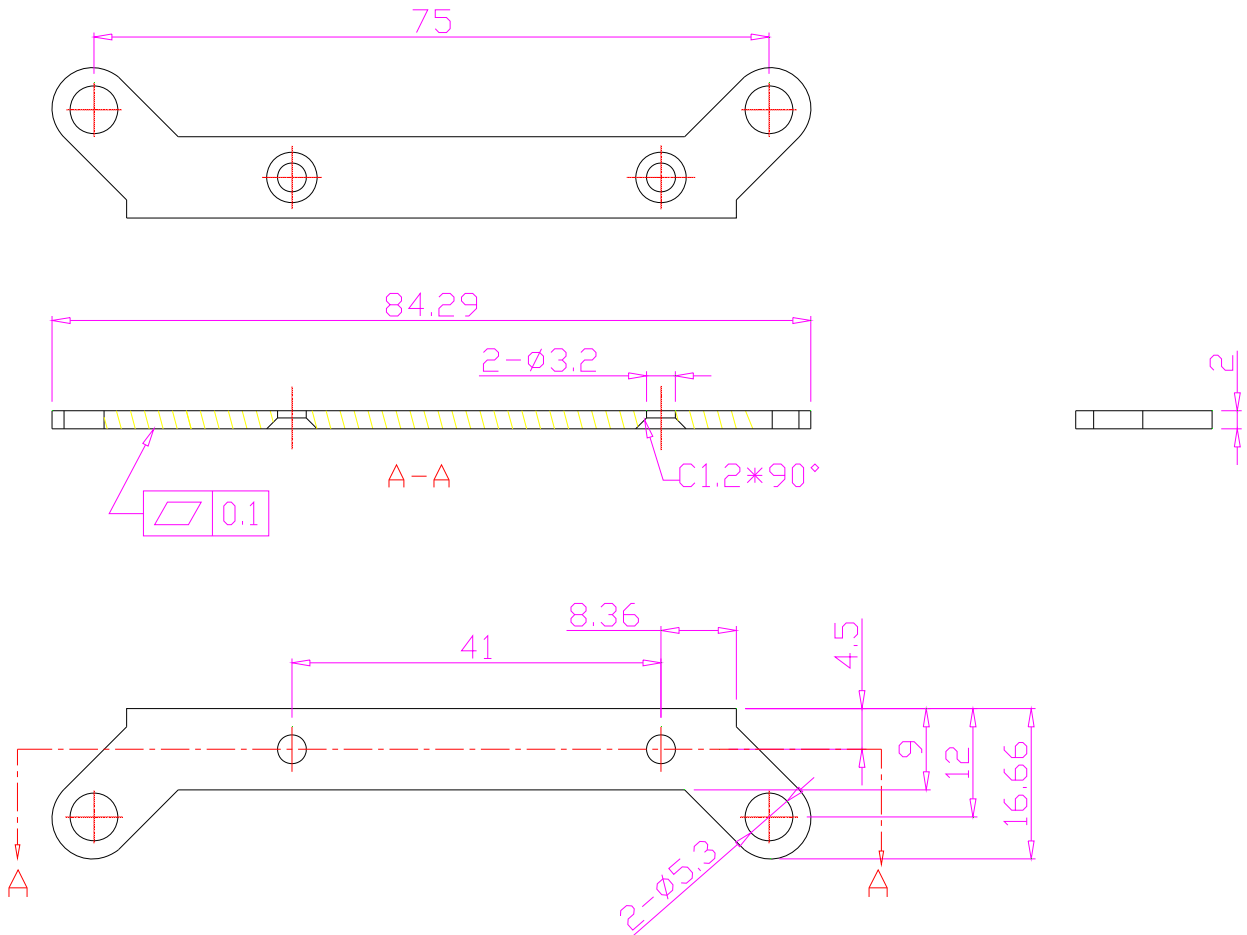


General Dimension Tolerances (Unit : mm )			
0	—	30	$\pm 0.1$
31	—	60	$\pm 0.15$
61	—	100	$\pm 0.2$
101	~		$\pm 0.25$
Angles			$\pm 1^\circ$



## 3.11 FootRack-02

Material : SUS 304



General Dimension Tolerances (Unit : mm )			
0	—	30	± 0.1
31	—	60	± 0.15
61	—	100	± 0.2
101	~		± 0.25
Angles			± 1°

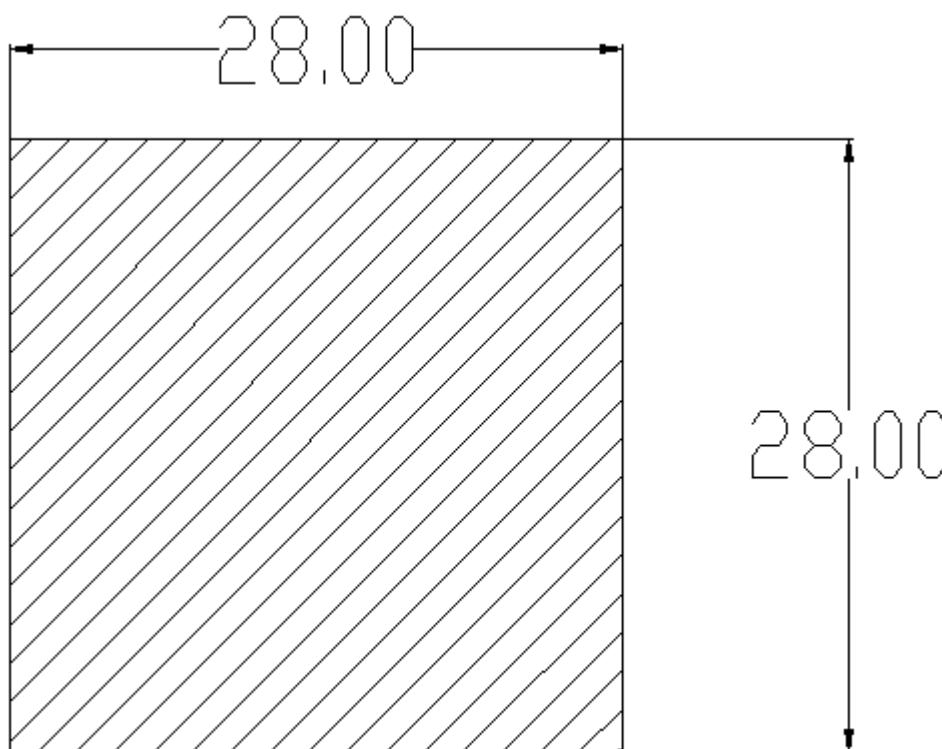


## 3.12 Interface

SIZE(mm): L\*W = 28\*28

Thickness : 0.10~0.20 mm

Specification	Brand
BN-G560	博恩



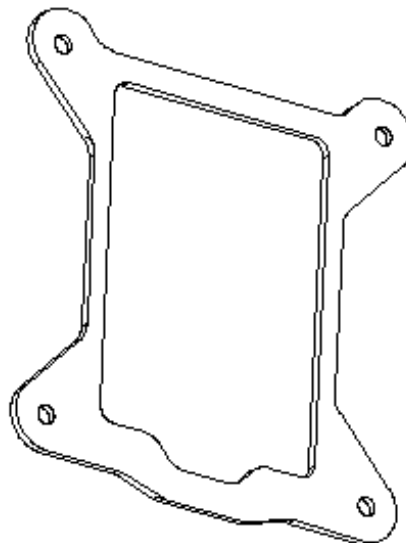
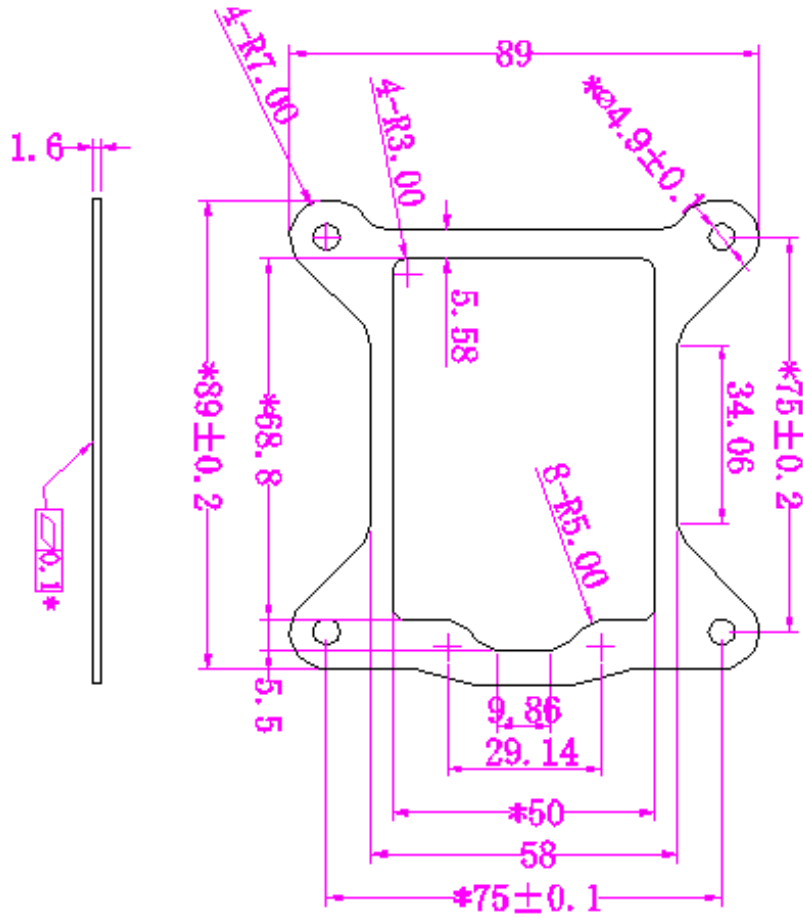
### General Dimension Tolerances (Unit : mm )

0	—	30	± 0.1
31	—	60	± 0.15
61	—	100	± 0.2
101	~		± 0.25
Angles			± 1°



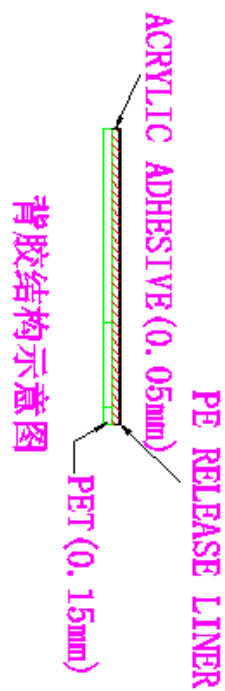
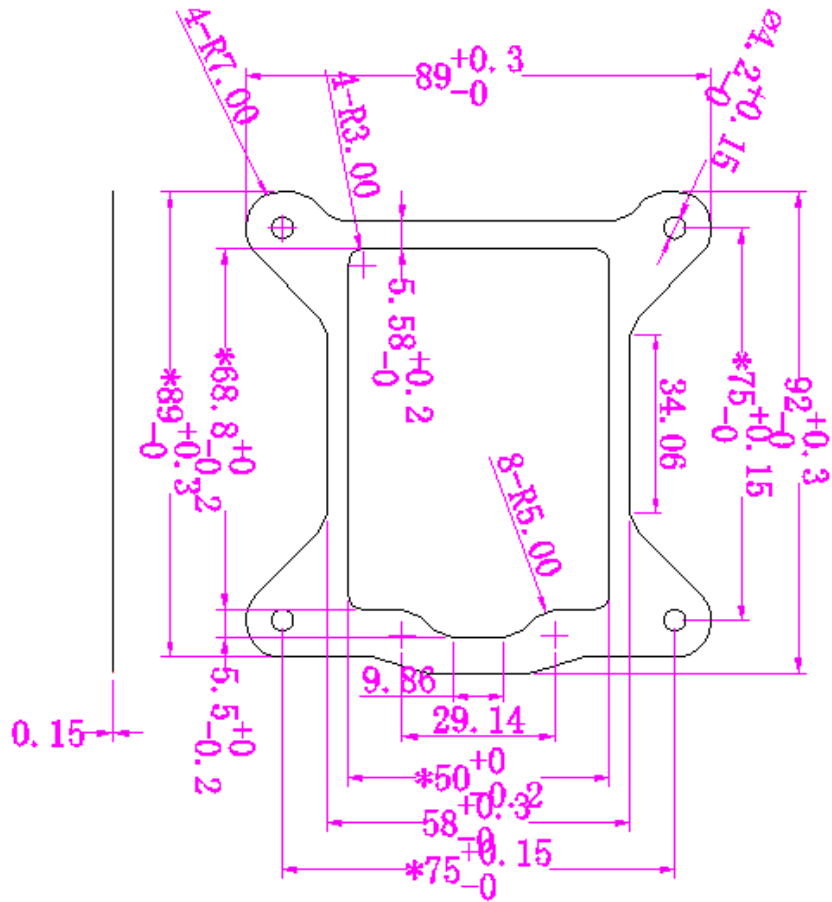


## 3.13 Back plate



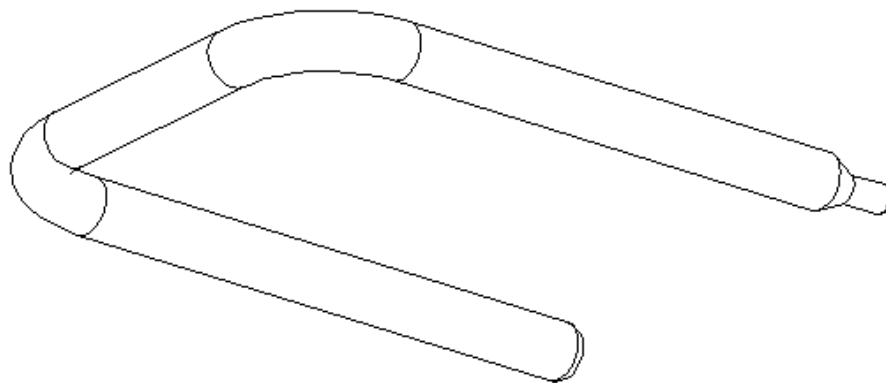
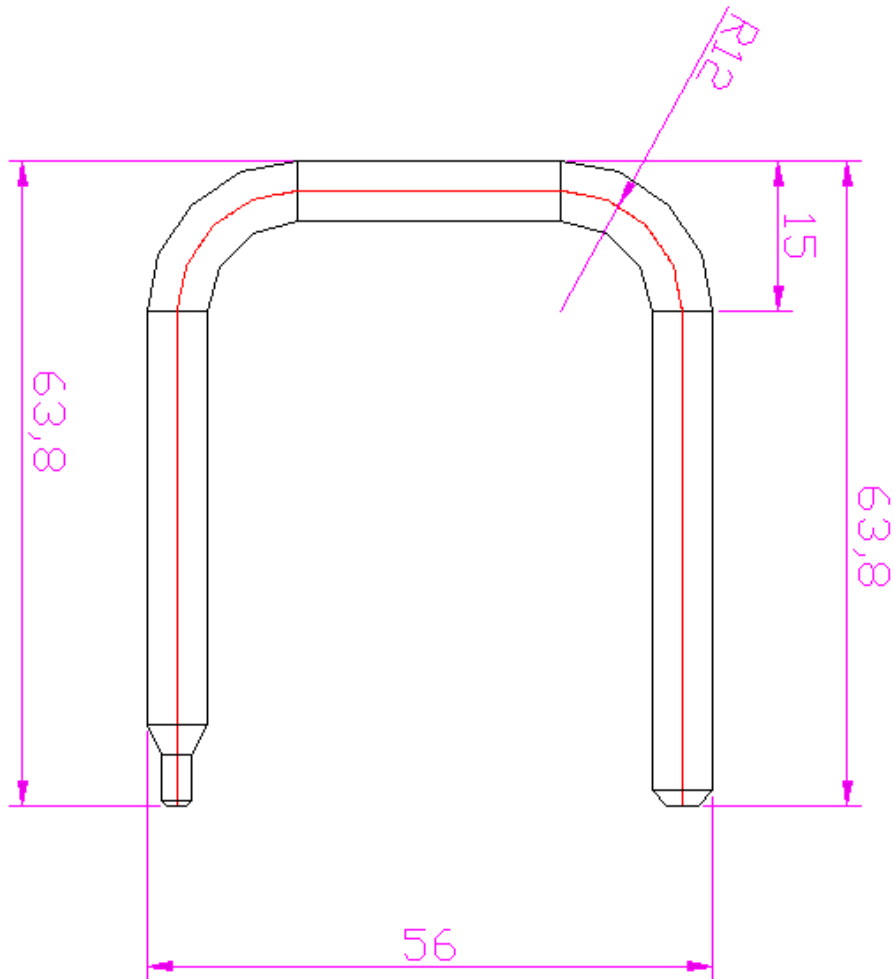


## 3.14 Mylar



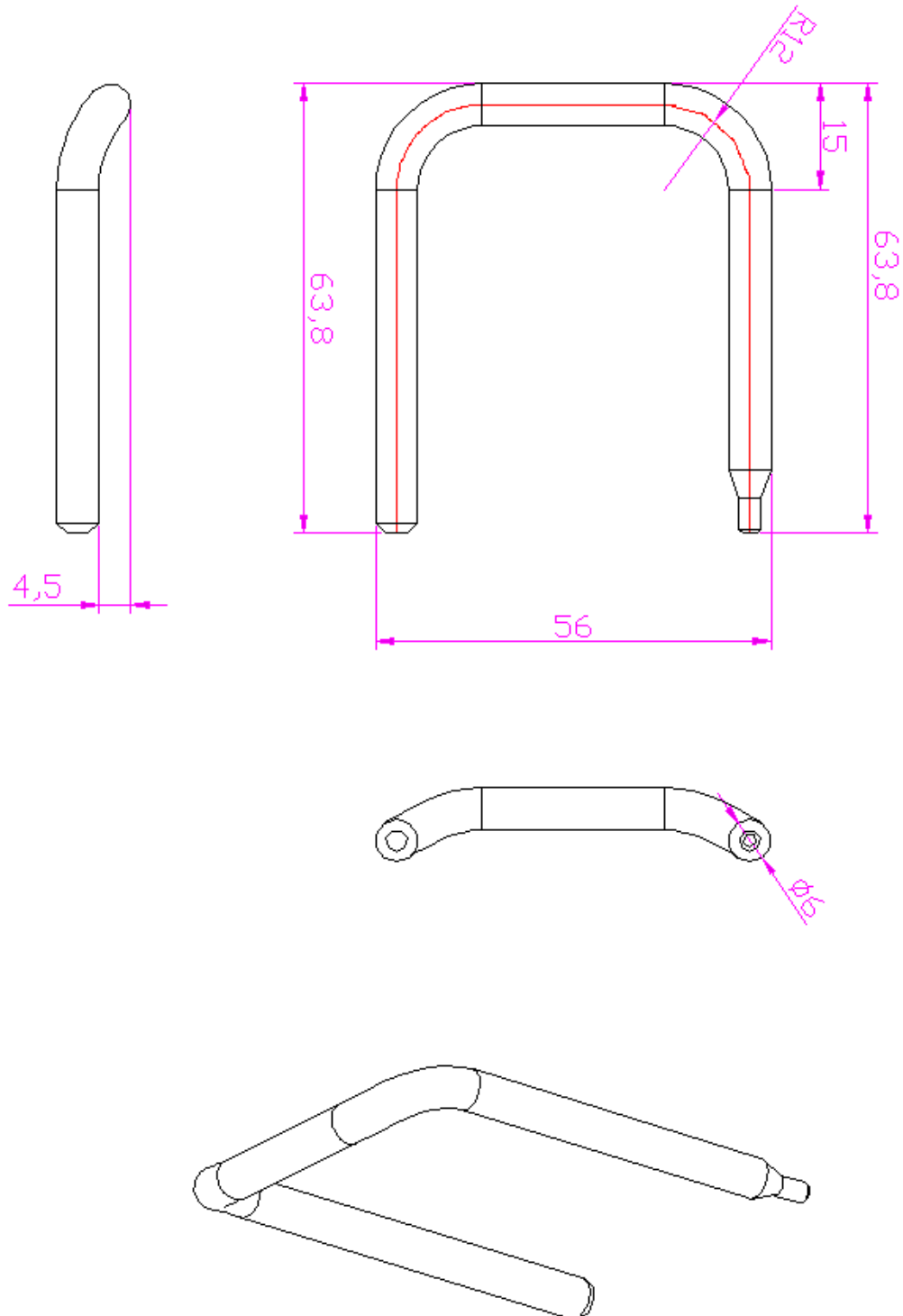


## 3.15 Heat Pipe1



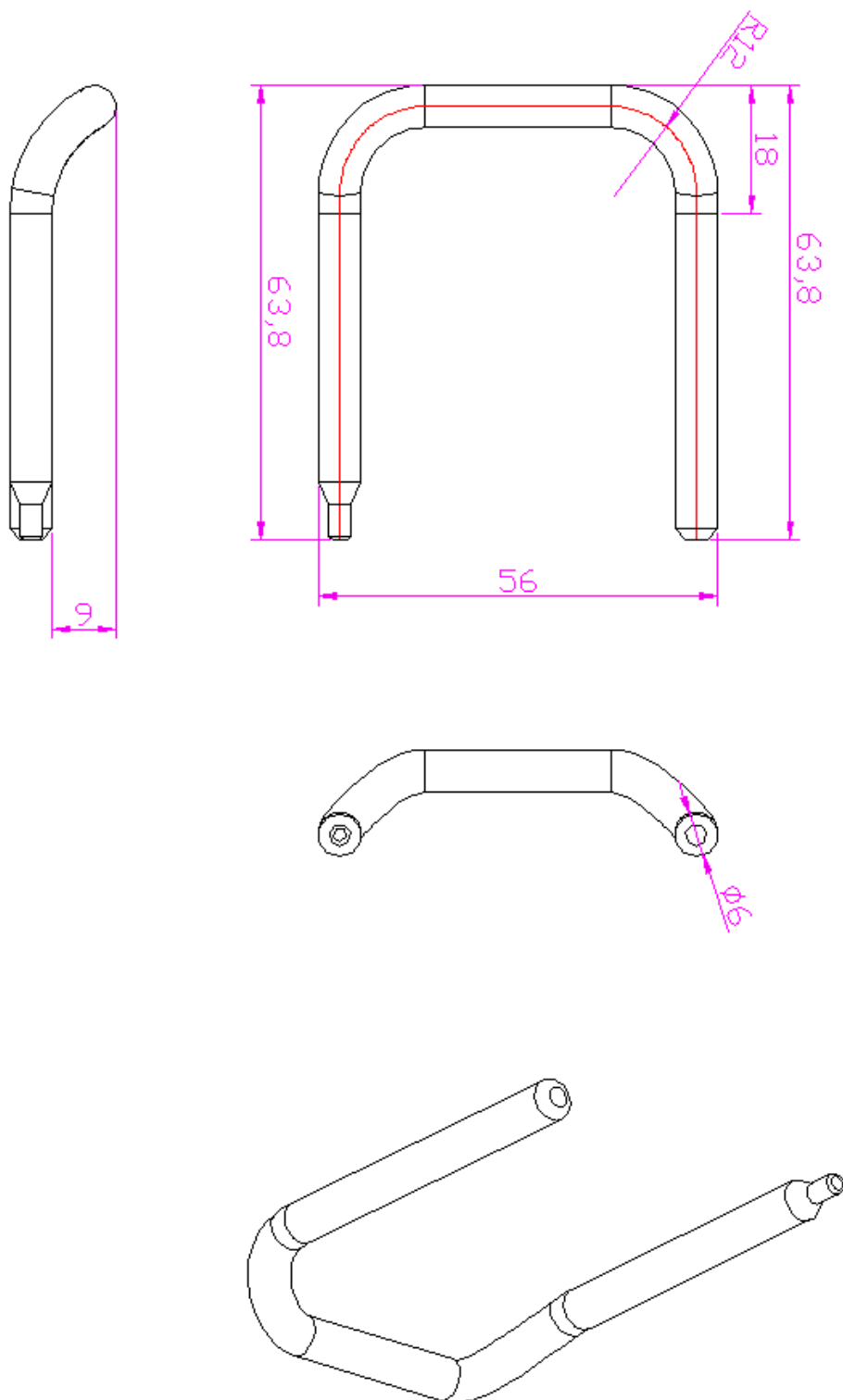


## 3.16 Heat Pipe2





## 3.17 Heat Pipe3





# Cooler Master Co., Ltd.

TEL: +86 (752)2677320

FAX : +86 (752)2677350

www.coolermaster.com.cn

## 4.Fan Spec

Serial NO. N/A



PROTECHNIC ELECTRIC CO., LTD.

### SPECIFICATION FOR APPROVAL

CUSTOMER: 訊華致遠

MODEL: MGT6012UB-W25

Series: A

P/N: H200000150-GP

Rev: 00

Date: Jun.15.2009

110105098

CUSTOMER APPROVAL  
APPROVED / DATE

廣泰電機(吳江)有限公司  
正本文件  
10年6月8日

環境管理物  
水立 W-GP-001 之標

Rev	Description

Notice:

This offer is made according to your current inquiry. Unless otherwise revised, this specification will be used for all future production of orders from your company.

Kindly study in detail and send back to us the specification sheets with your confirmation signature in order to make an arrangement for production.



Approved by	Checked by	Authorized by
晁沙 Jun.16.2009	易東升 Jun.16.2009	毛曉翹/梁錫稿 Jun.16.2009

Xinjiuwei Management Region, Liao Bu Town, Dongguan City, Guangdong, P.R.O.C,  
 Postcode: 523410 E-mail: protech@rotechnic.com  
 Tel: +86 (0) 769 83306888, 83306415, 83306416 Fax: +86 (0) 769 83306889

R-RD-048R1.4-1/4



Serial NO. N/A

## PRODUCT SAFETY

1. Protechnic will not guarantee this product if it is used in conditions other than the parameters outlined in this specifications.
2. Please contact Protechnic to confirm any customer requirements not specified in the specification.
3. Please handle fans carefully. Damage may result from pressure to the impeller, carrying by the lead wires, or dropping fans on a hard surface.
4. The introduction of power, dust water insects or other erosion elements into the hub will result in safety problems or product failure, except in products designed for special environments.
5. Items 1-4, mentioned above, are generally pertinent to our products, and should be a first point of reference.
6. It is very important to establish the correct polarity before connecting the fan to the power source, Positive (+) and Negative (-). Damage may be cause by connecting with reverse polarity.
7. Avoid operating Protechnic products in environments where poisonous or corrosive elements are present (organic, silicon, cyanogens, formal in phenol, H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, Cl<sub>2</sub>, etc)
8. Please ensure that fans are stored according to the storage temperature specified. Do not store in a high humidity environment. If fans are stored for more than 6 months, Protechnic recommends testing of fans before using.
9. Not all series fans are provided with the lock rotor protection feature. Damage or failure will result from operating fans without this feature, if the impeller for the fan is in any way hindered or impaired.
10. Install fans carefully. Incorrect mounting or installation may result in excessive resonance, vibration and subsequent noise.
11. Safety is a top priority. Please utilize guard accessories to prevent injury to personnel.
12. Unless otherwise noted, all tests are conducted at 25°C ambient temperature, and 65% relative humidity.
13. When using multiple fans in parallel, connect an 'over 4.7µF' capacitor externally to the fan to prevent abnormality resulting from unstable power.
14. Any change to the parameters specified in this specification will be determined by mutual agreement between both parties. Parameters not specified will be identical to the final sample approved by your company.

R-RD-046R1.4-2/4



# Cooler Master Co., Ltd.

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www.coolermaster.com.cn

Serial NO. N/A

ITEMS	DESCRIPTION
Rated Voltage	D.C. 12V
Operating voltage	D.C. 7V~13.8V
Start up voltage	D.C. 7V (At 100% duty cycle and at 25°C Power ON/OFF)
Current	0.38A
Power	4.56W
Speed	7,300±10%rpm (At 25°C, To record speed after fan running normal, This time about 3~5minutes)
Air flow (at zero static pressure)	35.11CFM(1.060m <sup>3</sup> /min) Min:34.30CFM (0.974m <sup>3</sup> /min)
Air pressure (at zero air flow)	14.52mmH <sub>2</sub> O (0.572inchH <sub>2</sub> O) Min: 11.76mmH <sub>2</sub> O(0.463inchH <sub>2</sub> O)
Acoustical noise	47.2dB(A) Max: 50.2dB(A)
Life expectancy	70,000hrs continuous at 40°C, 15~65% relative humidity
Insulation resistance	Min 10MΩ Ohm between internal stator and lead wire (+) at 500VDC
Dielectric strength	5mA max at 600VAC 50Hz 1 second between frame and (+) term/insul
Operating temperature and humidity	-10 to 70°C, 5% to 95%RH
Storage temperature and humidity	-40 to 70°C, 5% to 95%RH

**Noise Test: (ISO10302)**

- Measurement within anechoic chamber under free air condition
- Microphone is placed at a distance of 1m on the axis of air intake side
- Chamber background noise max 6.7dB(A)
- Using microphones: G.R.A.S 1/2 inch measure system 40AE+28CA or 1 inch low measure system 40HF
- Test system: National Instrument NI-4474 data acquisition system
- Acoustical noise at rated speed

**PQ curve: (Rated Voltage or rated voltage at 100%PWM if applied)**

**Output of rotary Signal:**

- Output method- open collector method
- Circuit Specification:
  - 2-1 Specification:
    - V<sub>cc</sub> = 15V MAX
    - V<sub>ce(sat)</sub> = 1.0V MAX
    - I<sub>c</sub> = 50mA MAX
    - R<sub>L</sub> ≥ V<sub>ce(sat)</sub>/I<sub>c</sub>
  - 2-2 Frequency Generator Waveforms:

One Fan Rotation  
 N: Revolution per minute (rpm)  
 $T1 - T4 = \frac{1}{N}$  (sec)  
 Pulse width duty =  $T1 : (T1 + T2) = 50 \pm 5\%$

R-RD-046R1.4-3/4





# Cooler Master Co., Ltd.

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Serial NO. N/A

ITEMS	DESCRIPTION	REMARKS
Frame	PBT(30%GF) UL-94V-0	
Impeller	PBT(30%GF) UL-94V-0	
Weight	63g	
Bearing	Two ball bearings	
Housing	CKM P/N 25410108-04	or equivalence
Terminal	CKM P/N 25410301	or equivalence
Tube	N/A	
Label	ø27mm Material: PET	Protective
Speed Vs duty cycle(D.C.12V)	Duty cycle(%)	75%
	Speed (R.P.M.)	6,144±10%
		4,535±10%
		2,500±10%

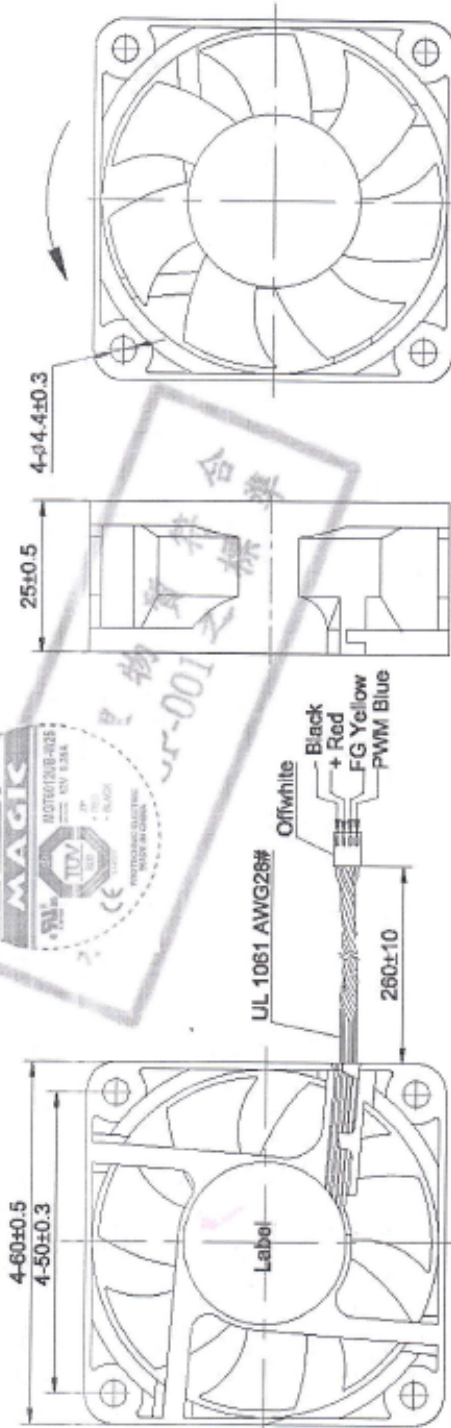
PWM test method: From 100% duty-cycle to 0% duty-cycle(At 25°C, rated voltage)

**PWM Signal:**

High signal: 2.8VDC MIN to 20VDC MAX  
 Low signal: 0.4VDC MAX to -0.8VDC MIN

duty cycle:  $\frac{t}{T} = 100\%$

- The control signal frequency of the fan shall be able 18~26KHz.
- The preferred operating point for the fan is 20KHZ.
- At 100% duty cycle, the rotor will spin at maximum speed.
- With control signal lead disconnected, the fan will spin at maximum speed.



DC BRUSHLESS FAN

PROTECHNIC ELECTRIC CO.,LTD.

R-RD-046R1.4-4/4



## 5.CE

### CERTIFICATE

Registration No.  
09EA11026 0109

Report No.  
09EA11026 03001



### DECLARATION OF CONFORMITY

This Verification of Compliance is hereby issued to the product designated below

Holder of Certificate : Protechnic Electric Co., Ltd.  
Longquan Industry, Xijiuwei Territory, Liaobu Village,  
Dongguan City, Guangdong, China.

Product : DC FAN

Model No.: MG(a)50(c)(d)(e)-(f)10, MG(a)50(c)(d)(e)-(f)15, MG(a)50(c)(d)(e)-(f)20,  
MG(a)60(c)(d)(e)-(f)10, MG(a)60(c)(d)(e)-(f)15, MG(a)60(c)(d)(e)-(f)20,  
MG(a)60(c)(d)(e)-(f)25, MG(a)70(c)(d)(e)-(f)15, MG(a)70(c)(d)(e)-(f)20,  
MG(a)70 (c)(d)(e)-(f)25, MG(a)60(c)(d)(e)-(f)38

Rated input : DC 5V, DC 12V ,DC 24V, DC 48V

Rated output : --

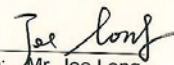
Tested according to : EN 55022: 2006+A1: 2007  
EN 55024: 1998+A1: 2000+A2: 2003

This certificate of conformity is based on evaluation of a sample of the above mentioned product. Technical report and documentation are at the licence Holder's disposal. This is to certify that the tested sample is in conformity with all revision of Annex I of Council Directive 2004/108/EC, referred to as the EMC. This certificate does not imply assessment of the series-production of the product . The holder of the certificate is authorized to use this certificate in Connection with the EC declaration of conformity according to Annex IV of the Directive.

ATT Product Service Co., Ltd  
(CBTL Lab of UL International Demko)  
Tel : 86-769-8509 8000 e-mail: att@attps.cn  
Fax: 86-769-8509 8777 http://www.attps.cn

Date of issue: 01/12/2010 (mm/dd/yy)

Certification Body

Signature:   
Mr. Joe Long  
(Manager)



The CE Marking may be used if all relevant and effective EC Directives are complied with.





## 6. UL

File E187236  
Project 02NK35534

Issued: October 7, 2002  
Revised: June 5, 2007

REPORT

ON

COMPONENT - ELECTRIC FAN

Potechnic Co., Ltd.  
Hsinchu Hsien, Taiwan

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File E187236

Vol. 1

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## DESCRIPTION

### PRODUCT COVERED:

USR, CNR Component - DC Fans, Models see ELECTRICAL RATINGS for details.

### MODEL REFERENCES:

New model numbers replace original model numbers as below tables for details. All references are identical to the original models, where (a) may be A or T; (e) may be B, C, R, F or S; and (f) may be A through Z or a through z.

Original Models Nos.	New Model Nos.
MG(a)3012X(e)-f10	MG(a)3012X(e)-(f)10
MG(a)3012Y(e)-f10	MG(a)3012Y(e)-(f)10
MG(a)3012Z(e)-f10	MG(a)3012Z(e)-(f)10
MG(a)3005M(e)-f10	MG(a)3005M(e)-(f)10
MG(a)3005H(e)-f10	MG(a)3005H(e)-(f)10
MG(a)3005X(e)-f10	MG(a)3005X(e)-(f)10
MG(a)3005Y(e)-f10	MG(a)3005Y(e)-(f)10
MG(a)3005Z(e)-f10	MG(a)3005Z(e)-(f)10
MG(a)3812L(e)-f28	MG(a)3812L(e)-(f)28
MG(a)3812M(e)-f28	MG(a)3812M(e)-(f)28
MG(a)3812H(e)-f28	MG(a)3812H(e)-(f)28
	MG(a)3812X(e)-(f)28
	<b>MG(a)3812Y(e)-(f)28</b>
	<b>MG(a)3812Z(e)-(f)28</b>
MG(a)3812X(e)-f28	MG(a)3812X(e)-(f)28
MG(a)3824L(e)-f28	MG(a)3824L(e)-(f)28
MG(a)3824M(e)-f28	MG(a)3824M(e)-(f)28
MG(a)3824H(e)-f28	MG(a)3824H(e)-(f)28
MG(a)3824X(e)-f28	MG(a)3824X(e)-(f)28
MG(a)4012L(e)-f10	MG(a)4012L(e)-(f)10
MG(a)4012M(e)-f10	MG(a)4012M(e)-(f)10
MG(a)4012H(e)-f10	MG(a)4012H(e)-(f)10
MG(a)4012X(e)-f10	MG(a)4012X(e)-(f)10
MG(a)4012Y(e)-f10	MG(a)4012Y(e)-(f)10
MG(a)4024L(e)-f10	MG(a)4024L(e)-(f)10
MG(a)4024M(e)-f10	MG(a)4024M(e)-(f)10
MG(a)4024H(e)-f10	MG(a)4024H(e)-(f)10
MG(a)4024X(e)-f10	MG(a)4024X(e)-(f)10
MG(a)4024Y(e)-f10	MG(a)4024Y(e)-(f)10
MG(a)4005L(e)-f10	MG(a)4005L(e)-(f)10
MG(a)4005M(e)-f10	MG(a)4005M(e)-(f)10
MG(a)4005H(e)-f10	MG(a)4005H(e)-(f)10
MG(a)4005X(e)-f10	MG(a)4005X(e)-(f)10
MG(a)4005Y(e)-f10	MG(a)4005Y(e)-(f)10
MG(a)4012L(e)-f15	MG(a)4012L(e)-(f)15
MG(a)4012M(e)-f15	MG(a)4012M(e)-(f)15
MG(a)4012H(e)-f15	MG(a)4012H(e)-(f)15
MG(a)4012X(e)-f15	MG(a)4012X(e)-(f)15
MG(a)4012Y(e)-f15	MG(a)4012Y(e)-(f)15
MG(a)4012Z(e)-f15	MG(a)4012Z(e)-(f)15



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\*Original Models Nos.

\*New Model Nos.

MG (a) 4005L (e) -f15  
 MG (a) 4005M (e) -f15  
 MG (a) 4005H (e) -f15  
 MG (a) 4005X (e) -f15  
 MG (a) 4005Y (e) -f15  
 MG (a) 4024L (e) -f15  
 MG (a) 4024M (e) -f15  
 MG (a) 4024H (e) -f15  
 MG (a) 4024X (e) -f15  
 MG (a) 4024Y (e) -f15  
 MG (a) 4024Z (e) -f15  
 MG (a) 4012L (e) -f20  
 MG (a) 4012M (e) -f20  
 MG (a) 4012H (e) -f20  
 MG (a) 4012X (e) -f20  
 MG (a) 4012Y (e) -f20  
 MG (a) 4012Z (e) -f20  
 MG (a) 4005L (e) -f20  
 MG (a) 4005M (e) -f20  
 MG (a) 4005H (e) -f20  
 MG (a) 4005X (e) -f20  
 MG (a) 4024L (e) -f20  
 MG (a) 4024M (e) -f20  
 MG (a) 4024H (e) -f20  
 MG (a) 4024X (e) -f20  
 MG (a) 4024Y (e) -f20  
 MG (a) 4024Z (e) -f20  
 MG (a) 4012X (e) -f28  
 MG (a) 4012Y (e) -f28  
 MG (a) 4012Z (e) -f28  
 MG (a) 4012U (e) -f28  
 MG (a) 4005L (e) -f28  
 MG (a) 4005M (e) -f28  
 MG (a) 4005H (e) -f28  
 MG (a) 4024X (e) -f28  
 MG (a) 4024Y (e) -f28  
 MG (a) 4024Z (e) -f28  
 MG (a) 4012X (e) -f32  
 MG (a) 4012Y (e) -f32  
 MG (a) 4012Z (e) -f32  
 MG (a) 4024X (e) -f32  
 MG (a) 4024Y (e) -f32  
 MG (a) 4024Z (e) -f32  
 MG (a) 4512L (e) -f10  
 MG (a) 4512M (e) -f10  
 MG (a) 4512H (e) -f10  
 MG (a) 4512X (e) -f10  
 MG (a) 4505L (e) -f10  
 MG (a) 4505M (e) -f10  
 MG (a) 4505H (e) -f10  
 MG (a) 4505X (e) -f10

MG (a) 4005L (e) - (f) 15  
 MG (a) 4005M (e) - (f) 15  
 MG (a) 4005H (e) - (f) 15  
 MG (a) 4005X (e) - (f) 15  
 MG (a) 4005Y (e) - (f) 15  
 MG (a) 4024L (e) - (f) 15  
 MG (a) 4024M (e) - (f) 15  
 MG (a) 4024H (e) - (f) 15  
 MG (a) 4024X (e) - (f) 15  
 MG (a) 4024Y (e) - (f) 15  
 MG (a) 4024Z (e) - (f) 15  
 MG (a) 4012L (e) - (f) 20  
 MG (a) 4012M (e) - (f) 20  
 MG (a) 4012H (e) - (f) 20  
 MG (a) 4012X (e) - (f) 20  
 MG (a) 4012Y (e) - (f) 20  
 MG (a) 4012Z (e) - (f) 20  
 MG (a) 4005L (e) - (f) 20  
 MG (a) 4005M (e) - (f) 20  
 MG (a) 4005H (e) - (f) 20  
 MG (a) 4005X (e) - (f) 20  
 MG (a) 4024L (e) - (f) 20  
 MG (a) 4024M (e) - (f) 20  
 MG (a) 4024H (e) - (f) 20  
 MG (a) 4024X (e) - (f) 20  
 MG (a) 4024Y (e) - (f) 20  
 MG (a) 4024Z (e) - (f) 20  
 MG (a) 4012X (e) - (f) 28  
 MG (a) 4012Y (e) - (f) 28  
 MG (a) 4012Z (e) - (f) 28  
 MG (a) 4012U (e) - (f) 28  
 MG (a) 4005L (e) - (f) 28  
 MG (a) 4005M (e) - (f) 28  
 MG (a) 4005H (e) - (f) 28  
 MG (a) 4024X (e) - (f) 28  
 MG (a) 4024Y (e) - (f) 28  
 MG (a) 4024Z (e) - (f) 28  
 MG (a) 4012X (e) - (f) 32  
 MG (a) 4012Y (e) - (f) 32  
 MG (a) 4012Z (e) - (f) 32  
 MG (a) 4024X (e) - (f) 32  
 MG (a) 4024Y (e) - (f) 32  
 MG (a) 4024Z (e) - (f) 32  
 MG (a) 4512L (e) - (f) 10  
 MG (a) 4512M (e) - (f) 10  
 MG (a) 4512H (e) - (f) 10  
 MG (a) 4512X (e) - (f) 10  
 MG (a) 4505L (e) - (f) 10  
 MG (a) 4505M (e) - (f) 10  
 MG (a) 4505H (e) - (f) 10  
 MG (a) 4505X (e) - (f) 10

Note: Above (a) may be A or T; (e) may be B, C, R, F or S; and (f) may be A through Z or a through z.



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\*Original Models Nos.

\*New Model Nos.

MG(a) 4524L(e)-f10  
 MG(a) 4524M(e)-f10  
 MG(a) 4524H(e)-f10  
 MG(a) 4524X(e)-f10  
 MG(a) 5012L(e)-f10  
 MG(a) 5012M(e)-f10  
 MG(a) 5012H(e)-f10  
 MG(a) 5012X(e)-f10  
 MG(a) 5005L(e)-f10  
 MG(a) 5005M(e)-f10  
 MG(a) 5005H(e)-f10  
 MG(a) 5005X(e)-f10  
 MG(a) 5024L(e)-f10  
 MG(a) 5024M(e)-f10  
 MG(a) 5024H(e)-f10  
 MG(a) 5024X(e)-f10  
 MG(a) 6012L(e)-f10  
 MG(a) 6012M(e)-f10  
 MG(a) 6012H(e)-f10  
 MG(a) 6012X(e)-f10  
 MG(a) 6012Y(e)-f10  
 MG(a) 6005L(e)-f10  
 MG(a) 6005M(e)-f10  
 MG(a) 6005H(e)-f10  
 MG(a) 6024L(e)-f10  
 MG(a) 6024M(e)-f10  
 MG(a) 6024H(e)-f10  
 MG(a) 6024X(e)-f10  
 MG(a) 6024Y(e)-f10  
 MG(a) 6012L(e)-f15  
 MG(a) 6012M(e)-f15  
 MG(a) 6012H(e)-f15  
 MG(a) 6012X(e)-f15  
 MG(a) 6012Y(e)-f15  
 MG(a) 6012Z(e)-f15  
 MG(a) 6024L(e)-f15  
 MG(a) 6024M(e)-f15  
 MG(a) 6024H(e)-f15  
 MG(a) 6024X(e)-f15  
 MG(a) 6024Y(e)-f15  
 MG(a) 6024Z(e)-f15  
 MG(a) 6012L(e)-f20  
 MG(a) 6012M(e)-f20  
 MG(a) 6012H(e)-f20  
 MG(a) 6012X(e)-f20  
 MG(a) 6012Y(e)-f20  
 MG(a) 6012Z(e)-f20  
 MG(a) 6024L(e)-f20  
 MG(a) 6024M(e)-f20  
 MG(a) 6024H(e)-f20

MG(a) 4524L(e) - (f) 10  
 MG(a) 4524M(e) - (f) 10  
 MG(a) 4524H(e) - (f) 10  
 MG(a) 4524X(e) - (f) 10  
 MG(a) 5012L(e) - (f) 10  
 MG(a) 5012M(e) - (f) 10  
 MG(a) 5012H(e) - (f) 10  
 MG(a) 5012X(e) - (f) 10  
 MG(a) 5005L(e) - (f) 10  
 MG(a) 5005M(e) - (f) 10  
 MG(a) 5005H(e) - (f) 10  
 MG(a) 5005X(e) - (f) 10  
 MG(a) 5024L(e) - (f) 10  
 MG(a) 5024M(e) - (f) 10  
 MG(a) 5024H(e) - (f) 10  
 MG(a) 5024X(e) - (f) 10  
 MG(a) 6012L(e) - (f) 10  
 MG(a) 6012M(e) - (f) 10  
 MG(a) 6012H(e) - (f) 10  
 MG(a) 6012X(e) - (f) 10  
 MG(a) 6012Y(e) - (f) 10  
 MG(a) 6005L(e) - (f) 10  
 MG(a) 6005M(e) - (f) 10  
 MG(a) 6005H(e) - (f) 10  
 MG(a) 6024L(e) - (f) 10  
 MG(a) 6024M(e) - (f) 10  
 MG(a) 6024H(e) - (f) 10  
 MG(a) 6024X(e) - (f) 10  
 MG(a) 6024Y(e) - (f) 10  
 MG(a) 6012L(e) - (f) 15  
 MG(a) 6012M(e) - (f) 15  
 MG(a) 6012H(e) - (f) 15  
 MG(a) 6012X(e) - (f) 15  
 MG(a) 6012Y(e) - (f) 15  
 MG(a) 6012Z(e) - (f) 15  
 MG(a) 6024L(e) - (f) 15  
 MG(a) 6024M(e) - (f) 15  
 MG(a) 6024H(e) - (f) 15  
 MG(a) 6024X(e) - (f) 15  
 MG(a) 6024Y(e) - (f) 15  
 MG(a) 6024Z(e) - (f) 15  
 MG(a) 6012L(e) - (f) 20  
 MG(a) 6012M(e) - (f) 20  
 MG(a) 6012H(e) - (f) 20  
 MG(a) 6012X(e) - (f) 20  
 MG(a) 6012Y(e) - (f) 20  
 MG(a) 6012Z(e) - (f) 20  
 MG(a) 6024L(e) - (f) 20  
 MG(a) 6024M(e) - (f) 20  
 MG(a) 6024H(e) - (f) 20

Note: Above (a) may be A or T; (e) may be B, C, R, F or S; and (f) may be A through Z or a through z.



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Original Models Nos.

New Model Nos.

MG (a) 6024Z (e) -f20  
 MG (a) 6024Y (e) -f20  
 MG (a) 6024Z (e) -f20  
 MG (a) 6012L (e) -f25  
 MG (a) 6012M (e) -f25  
 MG (a) 6012H (e) -f25  
 MG (a) 6012X (e) -f25  
 MG (a) 6012Y (e) -f25  
 MG (a) 6012Z (e) -f25  
 MG (a) 6012U (e) -f25  
**MG (a) 6012P (e) -f25**  
 MG (a) 6024L (e) -f25  
 MG (a) 6024M (e) -f25  
 MG (a) 6024H (e) -f25  
 MG (a) 6024X (e) -f25  
 MG (a) 6024Y (e) -f25  
 MG (a) 6024Z (e) -f25  
 MG (a) 6024U (e) -f25  
**MG (a) 6024V (e) -f25**  
**MG (a) 6024P (e) -f25**  
 MG (a) 6005L (e) -f25  
 MG (a) 6005M (e) -f25  
 MG (a) 6005H (e) -f25  
 MG (a) 6048H (e) -f25  
 MG (a) 6048X (e) -f25  
 MG (a) 6048Y (e) -f25  
 MG (a) 6048Z (e) -f25  
 MG (a) 6012L (e) -f38  
 MG (a) 6012M (e) -f38  
 MG (a) 6012H (e) -f38  
 MG (a) 6012X (e) -f38

MG (a) 6024L (e) -f38  
 MG (a) 6024M (e) -f38  
 MG (a) 6024H (e) -f38  
 MG (a) 6024X (e) -f38

MG (a) 7012L (e) -f15  
 MG (a) 7012M (e) -f15  
 MG (a) 7012H (e) -f15  
 MG (a) 7012X (e) -f15  
 MG (a) 7012Y (e) -f15  
 MG (a) 7012Z (e) -f15  
 MG (a) 7012U (e) -f15  
 MG (a) 7024L (e) -f15  
 MG (a) 7024M (e) -f15  
 MG (a) 7024H (e) -f15  
 MG (a) 7024X (e) -f15  
 MG (a) 7024Y (e) -f15  
 MG (a) 7024Z (e) -f15  
 MG (a) 7012L (e) -f20  
 MG (a) 7012M (e) -f20  
 MG (a) 7012H (e) -f20  
 MG (a) 7012X (e) -f20  
 MG (a) 7012Y (e) -f20

MG (a) 6024Z (e) - (f) 20  
 MG (a) 6024Y (e) - (f) 20  
 MG (a) 6024Z (e) - (f) 20  
 MG (a) 6012L (e) - (f) 25  
 MG (a) 6012M (e) - (f) 25  
 MG (a) 6012H (e) - (f) 25  
 MG (a) 6012X (e) - (f) 25  
 MG (a) 6012Y (e) - (f) 25  
 MG (a) 6012Z (e) - (f) 25  
 MG (a) 6012U (e) - (f) 25  
**MG (a) 6012P (e) - (f) 25**  
 MG (a) 6024L (e) - (f) 25  
 MG (a) 6024M (e) - (f) 25  
 MG (a) 6024H (e) - (f) 25  
 MG (a) 6024X (e) - (f) 25  
 MG (a) 6024Y (e) - (f) 25  
 MG (a) 6024Z (e) - (f) 25  
 MG (a) 6024U (e) - (f) 25  
**MG (a) 6024V (e) - (f) 25**  
**MG (a) 6024P (e) - (f) 25**  
 MG (a) 6005L (e) - (f) 25  
 MG (a) 6005M (e) - (f) 25  
 MG (a) 6005H (e) - (f) 25  
 MG (a) 6048H (e) - (f) 25  
 MG (a) 6048X (e) - (f) 25  
 MG (a) 6048Y (e) - (f) 25  
 MG (a) 6048Z (e) - (f) 25  
 MG (a) 6012L (e) - (f) 38  
 MG (a) 6012M (e) - (f) 38  
 MG (a) 6012H (e) - (f) 38  
 MG (a) 6012X (e) - (f) 38  
 MG (a) 6012Y (e) - (f) 38  
 MG (a) 6012Z (e) - (f) 38  
 MG (a) 6012U (e) - (f) 38  
 MG (a) 6024L (e) - (f) 38  
 MG (a) 6024M (e) - (f) 38  
 MG (a) 6024H (e) - (f) 38  
 MG (a) 6024X (e) - (f) 38  
 MG (a) 6024Y (e) - (f) 38  
 MG (a) 6024Z (e) - (f) 38  
 MG (a) 6024U (e) - (f) 38

MG (a) 7012L (e) - (f) 15  
 MG (a) 7012M (e) - (f) 15  
 MG (a) 7012H (e) - (f) 15  
 MG (a) 7012X (e) - (f) 15  
 MG (a) 7012Y (e) - (f) 15  
 MG (a) 7012Z (e) - (f) 15  
 MG (a) 7012U (e) - (f) 15  
 MG (a) 7024L (e) - (f) 15  
 MG (a) 7024M (e) - (f) 15  
 MG (a) 7024H (e) - (f) 15  
 MG (a) 7024X (e) - (f) 15  
 MG (a) 7024Y (e) - (f) 15  
 MG (a) 7024Z (e) - (f) 15  
 MG (a) 7012L (e) - (f) 20  
 MG (a) 7012M (e) - (f) 20  
 MG (a) 7012H (e) - (f) 20  
 MG (a) 7012X (e) - (f) 20  
 MG (a) 7012Y (e) - (f) 20

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Original Models Nos.	New Model Nos.
MG(a) 7012Z(e)-f20	MG(a) 7012Z(e) - (f) 20
MG(a) 7024L(e)-f20	MG(a) 7024L(e) - (f) 20
MG(a) 7024M(e)-f20	MG(a) 7024M(e) - (f) 20
MG(a) 7024H(e)-f20	MG(a) 7024H(e) - (f) 20
MG(a) 7024X(e)-f20	MG(a) 7024X(e) - (f) 20
MG(a) 7024Y(e)-f20	MG(a) 7024Y(e) - (f) 20
MG(a) 7012L(e)-f25	MG(a) 7012L(e) - (f) 25
MG(a) 7012M(e)-f25	MG(a) 7012M(e) - (f) 25
MG(a) 7012H(e)-f25	MG(a) 7012H(e) - (f) 25
MG(a) 7012X(e)-f25	MG(a) 7012X(e) - (f) 25
MG(a) 7012Y(e)-f25	MG(a) 7012Y(e) - (f) 25
MG(a) 7012Z(e)-f25	MG(a) 7012Z(e) - (f) 25
MG(a) 7024L(e)-f25	MG(a) 7024L(e) - (f) 25
MG(a) 7024M(e)-f25	MG(a) 7024M(e) - (f) 25
MG(a) 7024H(e)-f25	MG(a) 7024H(e) - (f) 25
MG(a) 7024X(e)-f25	MG(a) 7024X(e) - (f) 25
MG(a) 7024Y(e)-f25	MG(a) 7024Y(e) - (f) 25
MG(a) 7024Z(e)-f25	MG(a) 7024Z(e) - (f) 25
MG(a) 8012L(e)-f15	MG(a) 8012L(e) - (f) 15
MG(a) 8012M(e)-f15	MG(a) 8012M(e) - (f) 15
MG(a) 8012H(e)-f15	MG(a) 8012H(e) - (f) 15
MG(a) 8012X(e)-f15	MG(a) 8012X(e) - (f) 15
MG(a) 8012Y(e)-f15	MG(a) 8012Y(e) - (f) 15
MG(a) 8012Z(e)-f15	MG(a) 8012Z(e) - (f) 15
MG(a) 8024L(e)-f15	MG(a) 8024L(e) - (f) 15
MG(a) 8024M(e)-f15	MG(a) 8024M(e) - (f) 15
MG(a) 8024H(e)-f15	MG(a) 8024H(e) - (f) 15
MG(a) 8024X(e)-f15	MG(a) 8024X(e) - (f) 15
MG(a) 8024Y(e)-f15	MG(a) 8024Y(e) - (f) 15
MG(a) 8024Z(e)-f15	MG(a) 8024Z(e) - (f) 15
MG(a) 8012L(e)-f20	MG(a) 8012L(e) - (f) 20
MG(a) 8012M(e)-f20	MG(a) 8012M(e) - (f) 20
MG(a) 8012H(e)-f20	MG(a) 8012H(e) - (f) 20
MG(a) 8012X(e)-f20	MG(a) 8012X(e) - (f) 20
MG(a) 8012Y(e)-f20	MG(a) 8012Y(e) - (f) 20
MG(a) 8024L(e)-f20	MG(a) 8024L(e) - (f) 20
MG(a) 8024M(e)-f20	MG(a) 8024M(e) - (f) 20
MG(a) 8024H(e)-f20	MG(a) 8024H(e) - (f) 20
MG(a) 8024X(e)-f20	MG(a) 8024X(e) - (f) 20
MG(a) 8024Y(e)-f20	MG(a) 8024Y(e) - (f) 20
* MG(a) 8012L(e)-f25	MG(a) 8012L(e) - (f) 25
* MG(a) 8012M(e)-f25	MG(a) 8012M(e) - (f) 25
* MG(a) 8012H(e)-f25	MG(a) 8012H(e) - (f) 25
* MG(a) 8012X(e)-f25	MG(a) 8012X(e) - (f) 25
* MG(a) 8012Y(e)-f25	MG(a) 8012Y(e) - (f) 25
* MG(a) 8012Z(e)-f25	MG(a) 8012Z(e) - (f) 25
* MG(a) 8012U(e)-f25	MG(a) 8012U(e) - (f) 25

Note: Above (a) may be A or T; (e) may be B, C, R, F or





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Original Models Nos.

New Model Nos.

MG (a) 8024L (e) -f25  
 MG (a) 8024M (e) -f25  
 MG (a) 8024H (e) -f25  
 MG (a) 8024X (e) -f25  
 MG (a) 8024Y (e) -f25  
 MG (a) 8024Z (e) -f25  
 MG (a) 8024U (e) -f25  
 MG (a) 8005L (e) -f25  
 MG (a) 8005M (e) -f25  
 MG (a) 8005H (e) -f25  
 MG (a) 8048X (e) -f25  
 MG (a) 8048Y (e) -f25  
 MG (a) 8048Z (e) -f25  
 MG (a) 8048U (e) -f25  
 MG (a) 8012L (e) -f38  
 MG (a) 8012M (e) -f38  
 MG (a) 8012H (e) -f38  
 MG (a) 8012X (e) -f38  
 MG (a) 9212L (e) -f25  
 MG (a) 9212M (e) -f25  
 MG (a) 9212H (e) -f25  
 MG (a) 9212X (e) -f25  
 MG (a) 9212Y (e) -f25  
 MG (a) 9212Z (e) -f25  
 MG (a) 9212U (e) -f25  
 MG (a) 9224L (e) -f25  
 MG (a) 9224M (e) -f25  
 MG (a) 9224H (e) -f25  
 MG (a) 9224X (e) -f25  
 MG (a) 9224Y (e) -f25  
 MG (a) 9224Z (e) -f25  
 MG (a) 9224U (e) -f25  
 MG (a) 9248X (e) -f25  
 MG (a) 9248Y (e) -f25  
 MG (a) 9248Z (e) -f25  
 MG (a) 9248U (e) -f25  
 MG (a) 9212L (e) -f38  
 MG (a) 9212M (e) -f38  
 MG (a) 9212H (e) -f38  
 MG (a) 9212X (e) -f38  
 MG (a) 9212U (e) -f38  
 MG (a) 9212V (e) -f38  
 MG (a) 9224L (e) -f38  
 MG (a) 9224M (e) -f38  
 MG (a) 9224H (e) -f38  
 MG (a) 9224X (e) -f38

MG (a) 8024L (e) - (f) 25  
 MG (a) 8024M (e) - (f) 25  
 MG (a) 8024H (e) - (f) 25  
 MG (a) 8024X (e) - (f) 25  
 MG (a) 8024Y (e) - (f) 25  
 MG (a) 8024Z (e) - (f) 25  
 MG (a) 8024U (e) - (f) 25  
 MG (a) 8005L (e) - (f) 25  
 MG (a) 8005M (e) - (f) 25  
 MG (a) 8005H (e) - (f) 25  
 MG (a) 8048X (e) - (f) 25  
 MG (a) 8048Y (e) - (f) 25  
 MG (a) 8048Z (e) - (f) 25  
 MG (a) 8048U (e) - (f) 25  
 MG (a) 8012L (e) - (f) 38  
 MG (a) 8012M (e) - (f) 38  
 MG (a) 8012H (e) - (f) 38  
 MG (a) 8012X (e) - (f) 38  
 MG (a) 9212L (e) - (f) 25  
 MG (a) 9212M (e) - (f) 25  
 MG (a) 9212H (e) - (f) 25  
 MG (a) 9212X (e) - (f) 25  
 MG (a) 9212Y (e) - (f) 25  
 MG (a) 9212Z (e) - (f) 25  
 MG (a) 9212U (e) - (f) 25  
 MG (a) 9224L (e) - (f) 25  
 MG (a) 9224M (e) - (f) 25  
 MG (a) 9224H (e) - (f) 25  
 MG (a) 9224X (e) - (f) 25  
 MG (a) 9224Y (e) - (f) 25  
 MG (a) 9224Z (e) - (f) 25  
 MG (a) 9224U (e) - (f) 25  
 MG (a) 9248X (e) - (f) 25  
 MG (a) 9248Y (e) - (f) 25  
 MG (a) 9248Z (e) - (f) 25  
 MG (a) 9248U (e) - (f) 25  
 MG (a) 9212L (e) - (f) 38  
 MG (a) 9212M (e) - (f) 38  
 MG (a) 9212H (e) - (f) 38  
 MG (a) 9212X (e) - (f) 38  
 MG (a) 9212U (e) - (f) 38  
 MG (a) 9212V (e) - (f) 38  
 MG (a) 9224L (e) - (f) 38  
 MG (a) 9224M (e) - (f) 38  
 MG (a) 9224H (e) - (f) 38  
 MG (a) 9224X (e) - (f) 38

Note: Above (a) may be A or T; (e) may be B, C, R, F or S; and (f) may be A through Z or a through z.



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New: 2009-06-01

Original Models Nos.

New Model Nos.

MG(a)12012L(e)-f25  
MG(a)12012M(e)-f25  
MG(a)12012H(e)-f25  
MG(a)12012X(e)-f25  
MG(a)12012Y(e)-f25  
MG(a)12012Z(e)-f25  
MG(a)12024L(e)-f25  
MG(a)12024M(e)-f25  
MG(a)12024H(e)-f25

MG(a)12012L(e)-(f)25  
MG(a)12012M(e)-(f)25  
MG(a)12012H(e)-(f)25  
MG(a)12012X(e)-(f)25  
MG(a)12012Y(e)-(f)25  
MG(a)12012Z(e)-(f)25  
MG(a)12024L(e)-(f)25  
MG(a)12024M(e)-(f)25  
MG(a)12024H(e)-(f)25

Note: Above (a) may be A or T; (e) may be B, C, R, F or S; and (f) may be A through Z or a through z.



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Original Models Nos.

New Model Nos.

MG (a) 12024X (e) -f25  
 MG (a) 12024Y (e) -f25  
 MG (a) 12024Z (e) -f25  
 MG (a) 12048H (e) -f25  
 MG (a) 12048X (e) -f25  
 MG (a) 12048Y (e) -f25  
 MG (a) 12012L (e) -f38  
 MG (a) 12012M (e) -f38  
 MG (a) 12012H (e) -f38  
 MG (a) 12012X (e) -f38  
 MG (a) 12012Y (e) -f38  
 MG (a) 12024L (e) -f38  
 MG (a) 12024M (e) -f38  
 MG (a) 12024H (e) -f38  
 MG (a) 12024X (e) -f38  
 MG (a) 12024Y (e) -f38  
 MG (a) 12024Z (e) -f38  
**MG (a) 12024U (e) -f38 IP**  
 MG (a) 12048L (e) -f38  
 MG (a) 12048M (e) -f38  
 MG (a) 12048H (e) -f38  
 MG (a) 12048X (e) -f38  
 MG (a) 12048Y (e) -f38  
 MG (a) 12048Z (e) -f38  
**MG (a) 12048U (e) -f38 IP**  
 MB (a) 3705L (e) -f20  
 MB (a) 3705M (e) -f20  
 MB (a) 3705H (e) -f20  
 MB (a) 3712L (e) -f20  
 MB (a) 3712M (e) -f20  
 MB (a) 3712H (e) -f20  
 MB (a) 3712X (e) -f20  
 MB (a) 4405L (e) -f09  
 MB (a) 4405M (e) -f09  
 MB (a) 4412L (e) -f09  
 MB (a) 4412M (e) -f09  
 MB (a) 4412H (e) -f09  
 MB (a) 4412X (e) -f09  
 MB (a) 5105L (e) -f15  
 MB (a) 5105M (e) -f15  
 MB (a) 5112L (e) -f15  
 MB (a) 5112M (e) -f15  
 MB (a) 5112H (e) -f15  
 MB (a) 5112X (e) -f15  
 MB (a) 5124L (e) -f15  
 MB (a) 5124M (e) -f15  
 MB (a) 5124H (e) -f15  
 MB (a) 5124X (e) -f15  
 MB (a) 7012L (e) -f20  
 MB (a) 7012M (e) -f20  
 MB (a) 7012H (e) -f20  
 MB (a) 7012X (e) -f20

MG (a) 12024X (e) - (f) 25  
 MG (a) 12024Y (e) - (f) 25  
 MG (a) 12024Z (e) - (f) 25  
 MG (a) 12048H (e) - (f) 25  
 MG (a) 12048X (e) - (f) 25  
 MG (a) 12048Y (e) - (f) 25  
 MG (a) 12012L (e) - (f) 38  
 MG (a) 12012M (e) - (f) 38  
 MG (a) 12012H (e) - (f) 38  
 MG (a) 12012X (e) - (f) 38  
 MG (a) 12012Y (e) - (f) 38  
 MG (a) 12024L (e) - (f) 38  
 MG (a) 12024M (e) - (f) 38  
 MG (a) 12024H (e) - (f) 38  
 MG (a) 12024X (e) - (f) 38  
 MG (a) 12024Y (e) - (f) 38  
 MG (a) 12024Z (e) - (f) 38  
**MG (a) 12024U (e) - (f) 38 IP**  
 MG (a) 12048L (e) - (f) 38  
 MG (a) 12048M (e) - (f) 38  
 MG (a) 12048H (e) - (f) 38  
 MG (a) 12048X (e) - (f) 38  
 MG (a) 12048Y (e) - (f) 38  
 MG (a) 12048Z (e) - (f) 38  
**MG (a) 12048U (e) - (f) 38 IP**  
 MB (a) 3705L (e) - (f) 20  
 MB (a) 3705M (e) - (f) 20  
 MB (a) 3705H (e) - (f) 20  
 MB (a) 3712L (e) - (f) 20  
 MB (a) 3712M (e) - (f) 20  
 MB (a) 3712H (e) - (f) 20  
 MB (a) 3712X (e) - (f) 20  
 MB (a) 4405L (e) - (f) 09  
 MB (a) 4405M (e) - (f) 09  
 MB (a) 4412L (e) - (f) 09  
 MB (a) 4412M (e) - (f) 09  
 MB (a) 4412H (e) - (f) 09  
 MB (a) 4412X (e) - (f) 09  
 MB (a) 5105L (e) - (f) 15  
 MB (a) 5105M (e) - (f) 15  
 MB (a) 5112L (e) - (f) 15  
 MB (a) 5112M (e) - (f) 15  
 MB (a) 5112H (e) - (f) 15  
 MB (a) 5112X (e) - (f) 15  
 MB (a) 5124L (e) - (f) 15  
 MB (a) 5124M (e) - (f) 15  
 MB (a) 5124H (e) - (f) 15  
 MB (a) 5124X (e) - (f) 15  
 MB (a) 7012L (e) - (f) 20  
 MB (a) 7012M (e) - (f) 20  
 MB (a) 7012H (e) - (f) 20  
 MB (a) 7012X (e) - (f) 20

Note: Above (a) may be A or T; (e) may be B, C, R, F or S; and (f) may be A through Z or a through z.



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Original Models Nos.

MB (a) 7024L (e) - f20  
MB (a) 7024M (e) - f20  
MB (a) 7024H (e) - f20  
MB (a) 7024X (e) - f20  
MB (a) 8012L (e) - f80  
MB (a) 8012M (e) - f80  
MB (a) 8012H (e) - f80  
MB (a) 8012X (e) - f80

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New Model Nos.

MB (a) 7024L (e) - (f) 20  
MB (a) 7024M (e) - (f) 20  
MB (a) 7024H (e) - (f) 20  
MB (a) 7024X (e) - (f) 20  
MB (a) 8012L (e) - (f) 80  
MB (a) 8012M (e) - (f) 80  
MB (a) 8012H (e) - (f) 80  
MB (a) 8012X (e) - (f) 80

Note: Above (a) may be A or T; (e) may be B, C, R, F or S; and (f) may be A through Z or a through z.



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Original Models Nos.

New Model Nos.

BQT(a)9225-L(e)	BQT (a)9225-L(e)-(f), RIF (a)9225-L(e)-(f), RIF (a)9225-L(e)
BQT(a)9225-M(e)	BQT (a)9225-M(e)-(f), RIF (a)9225-M(e)-(f), RIF (a)9225-M(e)
BQT(a)9225-H(e)	BQT (a)9225-H(e)-(f), RIF (a)9225-H(e)-(f), RIF (a)9225-H(e)
BQT(a)9225-X(e)	BQT (a)9225-X(e)-(f), RIF (a)9225-X(e)-(f), RIF (a)9225-X(e)
BQT(a)9225-Y(e)	BQT (a)9225-Y(e)-(f), RIF (a)9225-Y(e)-(f), RIF (a)9225-Y(e)
BQT(a)9225-Z(e)	BQT (a)9225-Z(e)-(f), RIF (a)9225-Z(e)-(f), RIF (a)9225-Z(e)
BQT(a)9225-U(e)	BQT (a)9225-U(e)-(f), RIF (a)9225-U(e)-(f), RIF (a)9225-U(e)
BQT(a)8025-L(e)	BQT (a)8025-L(e)-(f), RIF (a)8025-L(e)-(f), RIF (a)8025-L(e)
BQT(a)8025-M(e)	BQT (a)8025-M(e)-(f), RIF (a)8025-M(e)-(f), RIF (a)8025-M(e)
BQT(a)8025-H(e)	BQT (a)8025-H(e)-(f), RIF (a)8025-H(e)-(f), RIF (a)8025-H(e)
BQT(a)8025-X(e)	BQT (a)8025-X(e)-(f), RIF (a)8025-X(e)-(f), RIF (a)8025-X(e)
BQT(a)8025-Y(e)	BQT (a)8025-Y(e)-(f), RIF (a)8025-Y(e)-(f), RIF (a)8025-Y(e)
BQT(a)8025-Z(e)	BQT (a)8025-Z(e)-(f), RIF (a)8025-Z(e)-(f), RIF (a)8025-Z(e)
BQT(a)8025-U(e)	BQT (a)8025-U(e)-(f), RIF (a)8025-U(e)-(f), RIF (a)8025-U(e)
FDB (a)9225-L(e)	FDB (a)9225-L(e)-(f)
FDB (a)9225-M(e)	FDB (a)9225-M(e)-(f)
FDB (a)9225-H(e)	FDB (a)9225-H(e)-(f)
FDB (a)9225-X(e)	FDB (a)9225-X(e)-(f)
FDB (a)9225-Y(e)	FDB (a)9225-Y(e)-(f)
FDB (a)9225-Z(e)	FDB (a)9225-Z(e)-(f)
FDB (a)9225-U(e)	FDB (a)9225-U(e)-(f)
FDB (a)8025-L(e)	FDB (a)8025-L(e)-(f)
FDB (a)8025-M(e)	FDB (a)8025-M(e)-(f)
FDB (a)8025-H(e)	FDB (a)8025-H(e)-(f)
FDB (a)8025-X(e)	FDB (a)8025-X(e)-(f)
FDB (a)8025-Y(e)	FDB (a)8025-Y(e)-(f)
FDB (a)8025-Z(e)	FDB (a)8025-Z(e)-(f)
FDB (a)8025-U(e)	FDB (a)8025-U(e)-(f)

Note: Above (a) may be A or T; (e) may be B, C, R, F or S; and (f) may be A-Z, a-z, 0-100 or PWM.



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New: 2010-03-04

## MODEL DIFFERENCES:

Below alternate model numbers are identical to the original models, except model designation only.

### Original Models Nos.

### Alternate Model Nos.

MG(a)8012L(e)-f25

BQT (a)8025-L(e),  
FDB (a)8025-L(e),  
RIF (a)8025-L(e),  
BQT (a)8025-L(e)-(f),  
FDB (a)8025-L(e)-(f),  
RIF (a)8025-L(e)-(f),  
BQT (a)8025-L(e)-(fff),  
FDB (a)8025-L(e)-(fff),  
RIF (a)8025-L(e)-(fff)

MG(a)8012M(e)-f25

BQT (a)8025-M(e),  
FDB (a)8025-M(e),  
RIF (a)8025-M(e),  
BQT (a)8025-M(e)-(f),  
FDB (a)8025-M(e)-(f),  
RIF (a)8025-M(e)-(f),  
BQT (a)8025-M(e)-(fff),  
FDB (a)8025-M(e)-(fff),  
RIF (a)8025-M(e)-(fff)

MG(a)8012H(e)-f25

BQT (a)8025-H(e),  
FDB (a)8025-H(e),  
RIF (a)8025-H(e),  
BQT (a)8025-H(e)-(f),  
FDB (a)8025-H(e)-(f),  
RIF (a)8025-H(e)-(f),  
BQT (a)8025-H(e)-(fff),  
FDB (a)8025-H(e)-(fff),  
RIF (a)8025-H(e)-(fff)

MG(a)8012X(e)-f25

BQT (a)8025-X(e),  
FDB (a)8025-X(e),  
RIF (a)8025-X(e),  
BQT (a)8025-X(e)-(f),  
FDB (a)8025-X(e)-(f),  
RIF (a)8025-X(e)-(f),  
BQT (a)8025-X(e)-(fff),  
FDB (a)8025-X(e)-(fff),  
RIF (a)8025-X(e)-(fff)

MG(a)8012Y(e)-f25

BQT (a)8025-Y(e),  
FDB (a)8025-Y(e),  
RIF (a)8025-Y(e),  
BQT (a)8025-Y(e)-(f),  
FDB (a)8025-Y(e)-(f),  
RIF (a)8025-Y(e)-(f),  
BQT (a)8025-Y(e)-(fff),  
FDB (a)8025-Y(e)-(fff),  
RIF (a)8025-Y(e)-(fff)

MG(a)8012Z(e)-f25

BQT (a)8025-Z(e),  
FDB (a)8025-Z(e),  
RIF (a)8025-Z(e),  
BQT (a)8025-Z(e)-(f),  
FDB (a)8025-Z(e)-(f),  
RIF (a)8025-Z(e)-(f),  
BQT (a)8025-Z(e)-(fff),  
FDB (a)8025-Z(e)-(fff),  
RIF (a)8025-Z(e)-(fff)

Note: where (a) may be A or T; (e) may be B, C, R, F or S; and (f) and (fff) may be A-Z, a-z, 0-9 or blank.



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## MODEL DIFFERENCES:

Below alternate model numbers are identical to the original models, except model designation only.

Original Models Nos.	Alternate Model Nos.
MG(a)8012L(e)-f25	BQT (a)8025-L(e), FDB (a)8025-L(e), RIF (a)8025-L(e), BQT (a)8025-L(e)-(f), FDB (a)8025-L(e)-(f), RIF (a)8025-L(e)-(f), BQT (a)8025-L(e)-(fff), FDB (a)8025-L(e)-(fff), RIF (a)8025-L(e)-(fff)
MG(a)8012M(e)-f25	BQT (a)8025-M(e), FDB (a)8025-M(e), RIF (a)8025-M(e), BQT (a)8025-M(e)-(f), FDB (a)8025-M(e)-(f), RIF (a)8025-M(e)-(f), BQT (a)8025-M(e)-(fff), FDB (a)8025-M(e)-(fff), RIF (a)8025-M(e)-(fff)
MG(a)8012H(e)-f25	BQT (a)8025-H(e), FDB (a)8025-H(e), RIF (a)8025-H(e), BQT (a)8025-H(e)-(f), FDB (a)8025-H(e)-(f), RIF (a)8025-H(e)-(f), BQT (a)8025-H(e)-(fff), FDB (a)8025-H(e)-(fff), RIF (a)8025-H(e)-(fff)
MG(a)8012X(e)-f25	BQT (a)8025-X(e), FDB (a)8025-X(e), RIF (a)8025-X(e), BQT (a)8025-X(e)-(f), FDB (a)8025-X(e)-(f), RIF (a)8025-X(e)-(f), BQT (a)8025-X(e)-(fff), FDB (a)8025-X(e)-(fff), RIF (a)8025-X(e)-(fff)
MG(a)8012Y(e)-f25	BQT (a)8025-Y(e), FDB (a)8025-Y(e), RIF (a)8025-Y(e), BQT (a)8025-Y(e)-(f), FDB (a)8025-Y(e)-(f), RIF (a)8025-Y(e)-(f), BQT (a)8025-Y(e)-(fff), FDB (a)8025-Y(e)-(fff), RIF (a)8025-Y(e)-(fff)
MG(a)8012Z(e)-f25	BQT (a)8025-Z(e), FDB (a)8025-Z(e), RIF (a)8025-Z(e), BQT (a)8025-Z(e)-(f), FDB (a)8025-Z(e)-(f), RIF (a)8025-Z(e)-(f), BQT (a)8025-Z(e)-(fff), FDB (a)8025-Z(e)-(fff), RIF (a)8025-Z(e)-(fff)

Note: where (a) may be A or T; (e) may be B, C, R, F or S; and (f) and (fff) may be A-Z, a-z, 0-9 or blank.



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New: 2010-03-04

Original Models Nos.

MG(a)8012U(e)-f25

MG(a)9212L(e)-f25

MG(a)9212M(e)-f25

MG(a)9212H(e)-f25

MG(a)9212X(e)-f25

MG(a)9212Y(e)-f25

Alternate Model Nos.

BQT (a)8025-U(e),  
 FDB (a)8025-U(e),  
 RIF (a)8025-U(e),  
 BQT (a)8025-U(e)-(f),  
 FDB (a)8025-U(e)-(f),  
 RIF (a)8025-U(e)-(f),  
 BQT (a)8025-U(e)-(fff),  
 FDB (a)8025-U(e)-(fff),  
 RIF (a)8025-U(e)-(fff),  
 BQT (a)9225-L(e),  
 FDB (a)9225-L(e),  
 RIF (a)9225-L(e),  
 BQT (a)9225-L(e)-(f),  
 FDB (a)9225-L(e)-(f),  
 RIF (a)9225-L(e)-(f),  
 BQT (a)9225-L(e)-(fff),  
 FDB (a)9225-L(e)-(fff),  
 RIF (a)9225-L(e)-(fff),  
 BQT (a)9225-M(e),  
 FDB (a)9225-M(e),  
 RIF (a)9225-M(e),  
 BQT (a)9225-M(e)-(f),  
 FDB (a)9225-M(e)-(f),  
 RIF (a)9225-M(e)-(f),  
 BQT (a)9225-M(e)-(fff),  
 FDB (a)9225-M(e)-(fff),  
 RIF (a)9225-M(e)-(fff),  
 BQT (a)9225-H(e),  
 FDB (a)9225-H(e),  
 RIF (a)9225-H(e),  
 BQT (a)9225-H(e)-(f),  
 FDB (a)9225-H(e)-(f),  
 RIF (a)9225-H(e)-(f),  
 BQT (a)9225-H(e)-(fff),  
 FDB (a)9225-H(e)-(fff),  
 RIF (a)9225-H(e)-(fff),  
 BQT (a)9225-X(e),  
 FDB (a)9225-X(e),  
 RIF (a)9225-X(e),  
 BQT (a)9225-X(e)-(f),  
 FDB (a)9225-X(e)-(f),  
 RIF (a)9225-X(e)-(f),  
 BQT (a)9225-X(e)-(fff),  
 FDB (a)9225-X(e)-(fff),  
 RIF (a)9225-X(e)-(fff),  
 BQT (a)9225-Y(e),  
 FDB (a)9225-Y(e),  
 RIF (a)9225-Y(e),  
 BQT (a)9225-Y(e)-(f),  
 FDB (a)9225-Y(e)-(f),  
 RIF (a)9225-Y(e)-(f),  
 BQT (a)9225-Y(e)-(fff),  
 FDB (a)9225-Y(e)-(fff),  
 RIF (a)9225-Y(e)-(fff)

Note: where (a) may be A or T; (e) may be B, C, R, F or S; and (f) and (fff) may be A-Z, a-z, 0-9 or blank.





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Original Models Nos.

Alternate Model Nos.

MG(a)9212Z(e)-f25

BQT (a)9225-Z(e),  
FDB (a)9225-Z(e),  
RIF (a)9225-Z(e),  
BQT (a)9225-Z(e)-(f),  
FDB (a)9225-Z(e)-(f),  
RIF (a)9225-Z(e)-(f),  
BQT (a)9225-Z(e)-(fff),  
FDB (a)9225-Z(e)-(fff),  
RIF (a)9225-Z(e)-(fff)

MG(a)9212U(e)-f25

BQT (a)9225-U(e),  
FDB (a)9225-U(e),  
RIF (a)9225-U(e),  
BQT (a)9225-U(e)-(f),  
FDB (a)9225-U(e)-(f),  
RIF (a)9225-U(e)-(f),  
BQT (a)9225-U(e)-(fff),  
FDB (a)9225-U(e)-(fff),  
RIF (a)9225-U(e)-(fff)

Note: where (a) may be A or T; (e) may be B, C, R, F or S; and (f) and (fff) may be A-Z, a-z, 0-9 or blank.



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## MODEL DIFFERENCES:

Below alternate model numbers are identical to the original models, except model designation and rated current only.

Original Models Nos.	Alternate Model Nos.
MG(a) 12012L(e) -f38	MG(a) 12012L(e) - (f) 38 IP
MG(a) 12012M(e) -f38	MG(a) 12012M(e) - (f) 38 IP
MG(a) 12012H(e) -f38	MG(a) 12012H(e) - (f) 38 IP
MG(a) 12012X(e) -f38	MG(a) 12012X(e) - (f) 38 IP
MG(a) 12012Y(e) -f38	MG(a) 12012Y(e) - (f) 38 IP
MG(a) 12024L(e) -f38	MG(a) 12024L(e) - (f) 38 IP
MG(a) 12024M(e) -f38	MG(a) 12024M(e) - (f) 38 IP
MG(a) 12024H(e) -f38	MG(a) 12024H(e) - (f) 38 IP
MG(a) 12024X(e) -f38	MG(a) 12024X(e) - (f) 38 IP
MG(a) 12024Y(e) -f38	MG(a) 12024Y(e) - (f) 38 IP
MG(a) 12024Z(e) -f38	MG(a) 12024Z(e) - (f) 38 IP
MG(a) 12048M(e) -f38	MG(a) 12048M(e) - (f) 38 IP
MG(a) 12048H(e) -f38	MG(a) 12048H(e) - (f) 38 IP
MG(a) 12048X(e) -f38	MG(a) 12048X(e) - (f) 38 IP
MG(a) 12048Y(e) -f38	MG(a) 12048Y(e) - (f) 38 IP
MG(a) 12048Z(e) -f38	MG(a) 12048Z(e) - (f) 38 IP



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## ELECTRICAL RATING:

Model	V dc	A
MG (a) 3012X (e) -f10	12	0.06
MG (a) 3012Y (e) -f10	12	0.07
MG (a) 3012Z (e) -f10	12	0.10
MG (a) 3005M (e) -f10	5	0.07
MG (a) 3005H (e) -f10	5	0.09
MG (a) 3005X (e) -f10	5	0.11
MG (a) 3005Y (e) -f10	5	0.14
MG (a) 3005Z (e) -f10	5	0.20
MG (a) 3812L (e) -f28	12	0.16
MG (a) 3812M (e) -f28	12	0.20
MG (a) 3812H (e) -f28	12	0.28
MG (a) 3812X (e) -f28	12	0.50
<b>MG (a) 3812Y (e) - (f) 28</b>	<b>12</b>	<b>0.6</b>
<b>MG (a) 3812Z (e) - (f) 28</b>	<b>12</b>	<b>1.0</b>
MG (a) 3824L (e) -f28	24	0.11
MG (a) 3824M (e) -f28	24	0.15
MG (a) 3824H (e) -f28	24	0.18
MG (a) 3824X (e) -f28	24	0.25
MG (a) 4012L (e) -f10	12	0.08
MG (a) 4012M (e) -f10	12	0.09
MG (a) 4012H (e) -f10	12	0.11
MG (a) 4012X (e) -f10	12	0.13
MG (a) 4012Y (e) -f10	12	0.16
MG (a) 4024L (e) -f10	24	0.06
MG (a) 4024M (e) -f10	24	0.07
MG (a) 4024H (e) -f10	24	0.08
MG (a) 4024X (e) -f10	24	0.09
MG (a) 4024Y (e) -f10	24	0.10
MG (a) 4005L (e) -f10	5	0.15
MG (a) 4005M (e) -f10	5	0.20
MG (a) 4005H (e) -f10	5	0.25
MG (a) 4005X (e) -f10	5	0.30
MG (a) 4005Y (e) -f10	5	0.38



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Model	V dc	A
MG (a) 4012L (e) -f15	12	0.09
MG (a) 4012M (e) -f15	12	0.10
MG (a) 4012H (e) -f15	12	0.11
MG (a) 4012X (e) -f15	12	0.13
MG (a) 4012Y (e) -f15	12	0.15
MG (a) 4012Z (e) -f15	12	0.20
<b>MG (a) 4012U (e) -f15</b>	<b>12</b>	<b>0.30</b>
<b>MG (a) 4012V (e) -f15</b>	<b>12</b>	<b>0.40</b>
MG (a) 4005L (e) -f15	5	0.18
MG (a) 4005M (e) -f15	5	0.20
MG (a) 4005H (e) -f15	5	0.26
MG (a) 4005X (e) -f15	5	0.30
MG (a) 4005Y (e) -f15	5	0.36
MG (a) 4024L (e) -f15	24	0.07
MG (a) 4024M (e) -f15	24	0.08
MG (a) 4024H (e) -f15	24	0.09
MG (a) 4024X (e) -f15	24	0.10
MG (a) 4024Y (e) -f15	24	0.11
MG (a) 4024Z (e) -f15	24	0.13
<b>MG (a) 4024U (e) -f15</b>	<b>24</b>	<b>0.17</b>
<b>MG (a) 4024V (e) -f15</b>	<b>24</b>	<b>0.26</b>
MG (a) 4012L (e) -f20	12	0.09
MG (a) 4012M (e) -f20	12	0.11
MG (a) 4012H (e) -f20	12	0.13
MG (a) 4012X (e) -f20	12	0.15
MG (a) 4012Y (e) -f20	12	0.18
MG (a) 4012Z (e) -f20	12	0.22
MG (a) 4005L (e) -f20	5	0.22
MG (a) 4005M (e) -f20	5	0.28
MG (a) 4005H (e) -f20	5	0.32
MG (a) 4005X (e) -f20	5	0.43
MG (a) 4024L (e) -f20	24	0.07
MG (a) 4024M (e) -f20	24	0.09
MG (a) 4024H (e) -f20	24	0.11
MG (a) 4024X (e) -f20	24	0.13
MG (a) 4024Y (e) -f20	24	0.14
MG (a) 4024Z (e) -f20	24	0.16
MG (a) 4012X (e) -f28	12	0.25
MG (a) 4012Y (e) -f28	12	0.38
MG (a) 4012Z (e) -f28	12	0.40
MG (a) 4012U (e) -f28	12	0.55
MG (a) 4005L (e) -f28	5	0.20
MG (a) 4005M (e) -f28	5	0.30
MG (a) 4005H (e) -f28	5	0.35
MG (a) 4024X (e) -f28	24	0.12
MG (a) 4024Y (e) -f28	24	0.15
MG (a) 4024Z (e) -f28	24	0.20



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Model	V dc	A
MG (a) 4012X (e) -f32	12	0.38
MG (a) 4012Y (e) -f32	12	0.45
MG (a) 4012Z (e) -f32	12	0.47
MG (a) 4024X (e) -f32	24	0.15
MG (a) 4024Y (e) -f32	24	0.20
MG (a) 4024Z (e) -f32	24	0.25
MG (a) 4512L (e) -f10	12	0.09
MG (a) 4512M (e) -f10	12	0.10
MG (a) 4512H (e) -f10	12	0.12
MG (a) 4512X (e) -f10	12	0.13
MG (a) 4505L (e) -f10	5	0.12
MG (a) 4505M (e) -f10	5	0.15
MG (a) 4505H (e) -f10	5	0.18
MG (a) 4505X (e) -f10	5	0.25
MG (a) 4524L (e) -f10	24	0.07
MG (a) 4524M (e) -f10	24	0.08
MG (a) 4524H (e) -f10	24	0.09
MG (a) 4524X (e) -f10	24	0.10
MG (a) 5012L (e) -f10	12	0.08
MG (a) 5012M (e) -f10	12	0.10
MG (a) 5012H (e) -f10	12	0.12
MG (a) 5012X (e) -f10	12	0.19
MG (a) 5005L (e) -f10	5	0.11
MG (a) 5005M (e) -f10	5	0.18
MG (a) 5005H (e) -f10	5	0.26
MG (a) 5005X (e) -f10	5	0.35
MG (a) 5024L (e) -f10	24	0.07
MG (a) 5024M (e) -f10	24	0.08
MG (a) 5024H (e) -f10	24	0.09
MG (a) 5024X (e) -f10	24	0.10
MG (a) 6012L (e) -f10	12	0.09
MG (a) 6012M (e) -f10	12	0.12
MG (a) 6012H (e) -f10	12	0.17
MG (a) 6012X (e) -f10	12	0.23
MG (a) 6012Y (e) -f10	12	0.30
MG (a) 6005L (e) -f10	5	0.16
MG (a) 6005M (e) -f10	5	0.25
MG (a) 6005H (e) -f10	5	0.35
MG (a) 6024L (e) -f10	24	0.08
MG (a) 6024M (e) -f10	24	0.11
MG (a) 6024H (e) -f10	24	0.13
MG (a) 6024X (e) -f10	24	0.19
MG (a) 6024Y (e) -f10	24	0.22



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Model	V dc	A
MG (a) 6012L (e) -f15	12	0.12
MG (a) 6012M (e) -f15	12	0.18
MG (a) 6012H (e) -f15	12	0.23
MG (a) 6012X (e) -f15	12	0.27
MG (a) 6012Y (e) -f15	12	0.37
MG (a) 6012Z (e) -f15	12	0.43
MG (a) 6024L (e) -f15	24	0.10
MG (a) 6024M (e) -f15	24	0.13
MG (a) 6024H (e) -f15	24	0.16
MG (a) 6024X (e) -f15	24	0.21
MG (a) 6024Y (e) -f15	24	0.26
MG (a) 6024Z (e) -f15	24	0.30
MG (a) 6012L (e) -f20	12	0.13
MG (a) 6012M (e) -f20	12	0.15
MG (a) 6012H (e) -f20	12	0.21
MG (a) 6012X (e) -f20	12	0.23
MG (a) 6012Y (e) -f20	12	0.27
MG (a) 6012Z (e) -f20	12	0.38
MG (a) 6024L (e) -f20	24	0.10
MG (a) 6024M (e) -f20	24	0.12
MG (a) 6024H (e) -f20	24	0.15
MG (a) 6024Z (e) -f20	24	0.17
MG (a) 6024Y (e) -f20	24	0.19
MG (a) 6024Z (e) -f20	24	0.22



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Model	V dc	A
MG(a) 6012L(e) -f25	12	0.11
MG(a) 6012M(e) -f25	12	0.13
MG(a) 6012H(e) -f25	12	0.17
MG(a) 6012X(e) -f25	12	0.20
MG(a) 6012Y(e) -f25	12	0.26
MG(a) 6012Z(e) -f25	12	0.31
MG(a) 6012U(e) -f25	12	0.38
<b>MG(a) 6012P(e) -f25</b>	<b>12</b>	<b>1.56</b>
MG(a) 6024L(e) -f25	24	0.09
MG(a) 6024M(e) -f25	24	0.12
MG(a) 6024H(e) -f25	24	0.14
MG(a) 6024X(e) -f25	24	0.17
MG(a) 6024Y(e) -f25	24	0.20
MG(a) 6024Z(e) -f25	24	0.22
MG(a) 6024U(e) -f25	24	0.29
<b>MG(a) 6024V(e) -f25</b>	<b>24</b>	<b>0.55</b>
<b>MG(a) 6024P(e) -f25</b>	<b>24</b>	<b>1.0</b>
MG(a) 6005L(e) -f25	5	0.22
MG(a) 6005M(e) -f25	5	0.30
MG(a) 6005H(e) -f25	5	0.38
MG(a) 6048H(e) -f25	48	0.05
MG(a) 6048X(e) -f25	48	0.08
MG(a) 6048Y(e) -f25	48	0.12
MG(a) 6048Z(e) -f25	48	0.18
MG(a) 6012L(e) -f38	12	0.35
MG(a) 6012M(e) -f38	12	0.50
MG(a) 6012H(e) -f38	12	0.75
MG(a) 6012X(e) -f38	12	0.95
MG(a) 6012Y(e) -f38	12	1.2
MG(a) 6012Z(e) -f38	12	1.5
MG(a) 6012U(e) -f38	12	1.8
MG(a) 6024L(e) -f38	24	0.18
MG(a) 6024M(e) -f38	24	0.25
MG(a) 6024H(e) -f38	24	0.38
MG(a) 6024X(e) -f38	24	0.50
MG(a) 6024Y(e) -f38	24	0.60
MG(a) 6024Z(e) -f38	24	0.75
MG(a) 6024U(e) -f38	24	1.00
MG(a) 7012L(e) -f15	12	0.10
MG(a) 7012M(e) -f15	12	0.13
MG(a) 7012H(e) -f15	12	0.17
MG(a) 7012X(e) -f15	12	0.22
MG(a) 7012Y(e) -f15	12	0.28
MG(a) 7012Z(e) -f15	12	0.41
MG(a) 7012U(e) -f15	12	0.58
MG(a) 7024L(e) -f15	24	0.10
MG(a) 7024M(e) -f15	24	0.13
MG(a) 7024H(e) -f15	24	0.16
MG(a) 7024X(e) -f15	24	0.18

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Model	V dc	A
MG (a) 7024Y (e) -f15	24	0.21
MG (a) 7024Z (e) -f15	24	0.25
MG (a) 7012L (e) -f20	12	0.14
MG (a) 7012M (e) -f20	12	0.19
MG (a) 7012H (e) -f20	12	0.27
MG (a) 7012X (e) -f20	12	0.36
MG (a) 7012Y (e) -f20	12	0.43
MG (a) 7012Z (e) -f20	12	0.63
MG (a) 7024L (e) -f20	24	0.08
MG (a) 7024M (e) -f20	24	0.11
MG (a) 7024H (e) -f20	24	0.16
MG (a) 7024X (e) -f20	24	0.20
MG (a) 7024Y (e) -f20	24	0.24
MG (a) 7012L (e) -f25	12	0.12
MG (a) 7012M (e) -f25	12	0.17
MG (a) 7012H (e) -f25	12	0.22
MG (a) 7012X (e) -f25	12	0.30
MG (a) 7012Y (e) -f25	12	0.39
MG (a) 7012Z (e) -f25	12	0.43
MG (a) 7024L (e) -f25	24	0.09
MG (a) 7024M (e) -f25	24	0.11
MG (a) 7024H (e) -f25	24	0.13
MG (a) 7024X (e) -f25	24	0.16
MG (a) 7024Y (e) -f25	24	0.20
MG (a) 7024Z (e) -f25	24	0.25





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Issued: 2002-10-07  
Revised: 2003-12-01

Model	V dc	A
MG (a) 8012L (e) -f15	12	0.10
MG (a) 8012M (e) -f15	12	0.13
MG (a) 8012H (e) -f15	12	0.18
MG (a) 8012X (e) -f15	12	0.23
MG (a) 8012Y (e) -f15	12	0.28
MG (a) 8012Z (e) -f15	12	0.35
MG (a) 8024L (e) -f15	24	0.08
MG (a) 8024M (e) -f15	24	0.10
MG (a) 8024H (e) -f15	24	0.12
MG (a) 8024X (e) -f15	24	0.16
MG (a) 8024Y (e) -f15	24	0.19
MG (a) 8024Z (e) -f15	24	0.23
MG (a) 8012L (e) -f20	12	0.15
MG (a) 8012M (e) -f20	12	0.21
MG (a) 8012H (e) -f20	12	0.27
MG (a) 8012X (e) -f20	12	0.36
MG (a) 8012Y (e) -f20	12	0.48
MG (a) 8024L (e) -f20	24	0.10
MG (a) 8024M (e) -f20	24	0.13
MG (a) 8024H (e) -f20	24	0.19
MG (a) 8024X (e) -f20	24	0.21
MG (a) 8024Y (e) -f20	24	0.28
MG (a) 8012L (e) -f25	12	0.12
MG (a) 8012M (e) -f25	12	0.15
MG (a) 8012H (e) -f25	12	0.24
MG (a) 8012X (e) -f25	12	0.39
MG (a) 8012Y (e) -f25	12	0.42
MG (a) 8012Z (e) -f25	12	0.54
MG (a) 8012U (e) -f25	12	0.66
MG (a) 8024L (e) -f25	24	0.09
MG (a) 8024M (e) -f25	24	0.11
MG (a) 8024H (e) -f25	24	0.16
MG (a) 8024X (e) -f25	24	0.23
MG (a) 8024Y (e) -f25	24	0.26
MG (a) 8024Z (e) -f25	24	0.30
MG (a) 8024U (e) -f25	24	0.48
MG (a) 8005L (e) -f25	5	0.28
MG (a) 8005M (e) -f25	5	0.32
MG (a) 8005H (e) -f25	5	0.45
MG (a) 8048X (e) -f25	48	0.08
MG (a) 8048Y (e) -f25	48	0.13
MG (a) 8048Z (e) -f25	48	0.18
MG (a) 8048U (e) -f25	48	0.30



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Model	V dc	A
MG (a) 8012L (e) -f38	12	0.40
MG (a) 8012M (e) -f38	12	0.54
MG (a) 8012H (e) -f38	12	0.80
MG (a) 8012X (e) -f38	12	1.20
MG (a) 8012Y (l) - (f) 38	12	1.80
MG (a) 9212L (e) -f25	12	0.15
MG (a) 9212M (e) -f25	12	0.17
MG (a) 9212H (e) -f25	12	0.25
MG (a) 9212X (e) -f25	12	0.32
MG (a) 9212Y (e) -f25	12	0.41
MG (a) 9212Z (e) -f25	12	0.47
MG (a) 9212U (e) -f25	12	0.54
MG (a) 9224L (e) -f25	24	0.12
MG (a) 9224M (e) -f25	24	0.15
MG (a) 9224H (e) -f25	24	0.19
MG (a) 9224X (e) -f25	24	0.22
MG (a) 9224Y (e) -f25	24	0.27
MG (a) 9224Z (e) -f25	24	0.40
MG (a) 9224U (e) -f25	24	0.48
MG (a) 9248X (e) -f25	48	0.12
MG (a) 9248Y (e) -f25	48	0.16
MG (a) 9248Z (e) -f25	48	0.20
MG (a) 9248U (e) -f25	48	0.25
MG (a) 9212L (e) -f38	12	0.35
MG (a) 9212M (e) -f38	12	0.50
MG (a) 9212H (e) -f38	12	0.75
MG (a) 9212X (e) -f38	12	1.00
<b>MG (a) 9212U (e) - (f) 38</b>	<b>12</b>	<b>3.0</b>
<b>MG (a) 9212V (e) - (f) 38</b>	<b>12</b>	<b>4.1</b>
MG (a) 9212Y (l) - (f) 38	12	1.50
MG (a) 9212Z (l) - (f) 38	12	1.90
MG (a) 9224L (e) -f38	24	0.18
MG (a) 9224M (e) -f38	24	0.28
MG (a) 9224H (e) -f38	24	0.40
MG (a) 9224X (e) -f38	24	0.50
MG (a) 9224Y (l) - (f) 38	24	0.70
MG (a) 9224Z (l) - (f) 38	24	1.00
MG (a) 9248M (l) - (f) 38	48	0.20
MG (a) 9248H (l) - (f) 38	48	0.28
MG (a) 9248X (l) - (f) 38	48	0.36
MG (a) 9248Y (l) - (f) 38	48	0.54
MG (a) 9248Z (l) - (f) 38	48	0.65

Note: above (a) may be A or T; (e) may be B, C, R, F or S; (l) may be B, R or F; (f) may be 0-9, a-z, A-Z or blank.



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Model	V dc	A
MG (a) 12012L (e) -f25	12	0.30
MG (a) 12012M (e) -f25	12	0.38
MG (a) 12012H (e) -f25	12	0.45
MG (a) 12012X (e) -f25	12	0.52
MG (a) 12012Y (e) -f25	12	0.68
MG (a) 12012Z (e) -f25	12	0.90
MG (a) 12024L (e) -f25	24	0.18
MG (a) 12024M (e) -f25	24	0.23
MG (a) 12024H (e) - (f) 25	24	0.30
MG (a) 12024X (e) - (f) 25	24	0.42
MG (a) 12024Y (e) - (f) 25	24	0.48
MG (a) 12024Z (e) - (f) 25	24	0.60
MG (a) 12048H (e) - (f) 25	48	0.12
MG (a) 12048X (e) - (f) 25	48	0.18
MG (a) 12048Y (e) - (f) 25	48	0.25
MG (a) 12012L (e) -f38	12	0.20
<b>MG (a) 12012L (e) -f38 IP</b>	<b>12</b>	<b>0.45</b>
MG (a) 12012M (e) -f38	12	0.28
<b>MG (a) 12012M (e) -f38 IP</b>	<b>12</b>	<b>0.68</b>
MG (a) 12012H (e) -f38	12	0.42
<b>MG (a) 12012H (e) -f38 IP</b>	<b>12</b>	<b>0.86</b>
MG (a) 12012X (e) -f38	12	0.60
<b>MG (a) 12012X (e) -f38 IP</b>	<b>12</b>	<b>1.35</b>
MG (a) 12012Y (e) -f38	12	0.80
<b>MG (a) 12012Y (e) -f38 IP</b>	<b>12</b>	<b>2.1</b>
MG (a) 12024L (e) -f38	24	0.13
<b>MG (a) 12024L (e) -f38 IP</b>	<b>24</b>	<b>0.22</b>
MG (a) 12024M (e) -f38	24	0.16
<b>MG (a) 12024M (e) -f38 IP</b>	<b>24</b>	<b>0.34</b>
MG (a) 12024H (e) -f38	24	0.24
<b>MG (a) 12024H (e) -f38 IP</b>	<b>24</b>	<b>0.43</b>
MG (a) 12024X (e) -f38	24	0.34
<b>MG (a) 12024X (e) -f38 IP</b>	<b>24</b>	<b>0.7</b>
*		
MG (a) 12024Y (e) -f38	24	0.46
<b>MG (a) 12024Y (e) -f38 IP</b>	<b>24</b>	<b>1.05</b>
MG (a) 12024Z (e) -f38	24	0.54
<b>MG (a) 12024Z (e) -f38 IP</b>	<b>24</b>	<b>1.4</b>
<b>MG (a) 12024U (e) -f38 IP</b>	<b>24</b>	<b>1.75</b>
MG (a) 12048L (e) -f38	48	0.13
MG (a) 12048M (e) -f38	48	0.17
<b>MG (a) 12048M (e) -f38 IP</b>	<b>48</b>	<b>0.18</b>
MG (a) 12048H (e) -f38	48	0.20
<b>MG (a) 12048H (e) -f38 IP</b>	<b>48</b>	<b>0.26</b>
MG (a) 12048X (e) -f38	48	0.27
<b>MG (a) 12048X (e) -f38 IP</b>	<b>48</b>	<b>0.35</b>
MG (a) 12048Y (e) -f38	48	0.32
<b>MG (a) 12048Y (e) -f38 IP</b>	<b>48</b>	<b>0.43</b>
MG (a) 12048Z (e) -f38	48	0.39
<b>MG (a) 12048Z (e) -f38 IP</b>	<b>48</b>	<b>0.6</b>
<b>MG (a) 12048U (e) -f38 IP</b>	<b>48</b>	<b>0.85</b>

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Issued: 2002-10-07

New: 2010-03-04

Model	V dc	A
MB (a) 3705L (e) -f20	5	0.15
MB (a) 3705M (e) -f20	5	0.25
MB (a) 3705H (e) -f20	5	0.40
MB (a) 3712L (e) -f20	12	0.12
MB (a) 3712M (e) -f20	12	0.18
MB (a) 3712H (e) -f20	12	0.25
MB (a) 3712X (e) -f20	12	0.38
MB (a) 4405L (e) -f09	5	0.20
MB (a) 4405M (e) -f09	5	0.28
MB (a) 4412L (e) -f09	12	0.15
MB (a) 4412M (e) -f09	12	0.20
MB (a) 4412H (e) -f09	12	0.24
MB (a) 4412X (e) -f09	12	0.32



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Model	V dc	A
MB (a) 5105L (e) -f15	5	0.14
MB (a) 5105M (e) -f15	5	0.33
MB (a) 5112L (e) -f15	12	0.08
MB (a) 5112M (e) -f15	12	0.12
MB (a) 5112H (e) -f15	12	0.16
MB (a) 5112X (e) -f15	12	0.21
MB (a) 5124L (e) -f15	24	0.06
MB (a) 5124M (e) -f15	24	0.08
MB (a) 5124H (e) -f15	24	0.09
MB (a) 5124X (e) -f15	24	0.12
MB (a) 7012L (e) -f20	12	0.12
MB (a) 7012M (e) -f20	12	0.16
MB (a) 7012H (e) -f20	12	0.20
MB (a) 7012X (e) -f20	12	0.28
MB (a) 7024L (e) -f20	24	0.09
MB (a) 7024M (e) -f20	24	0.12
MB (a) 7024H (e) -f20	24	0.15
MB (a) 7024X (e) -f20	24	0.18
MB (a) 8012L (e) -f80	12	0.20
MB (a) 8012M (e) -f80	12	0.30
MB (a) 8012H (e) -f80	12	0.40
MB (a) 8012X (e) -f80	12	0.55
MG (a) 12012UB-f38	12	2.20
MG (a) 12048UB-f38	48	0.60

Note: above (a) may be A or T; (e) may be B, C, R, F or S.