



協禧電機股份有限公司 ADDA CORPORATION

風扇基本架構及原理介紹



<http://www.adda.com.tw>

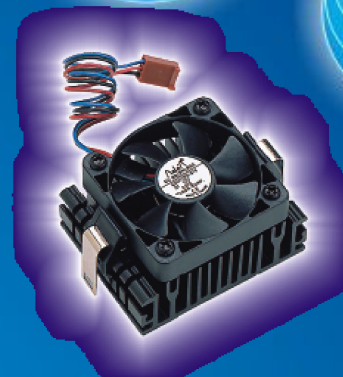
強制對流的幾種產品



超薄型散熱風鼓系列
Thin Chip Blower series



散熱風扇DC系列
DC Axial Fan
Series



中央處理器散熱器系列
CPU Cooler Series



Y支架風扇系列
Rib Fan Series

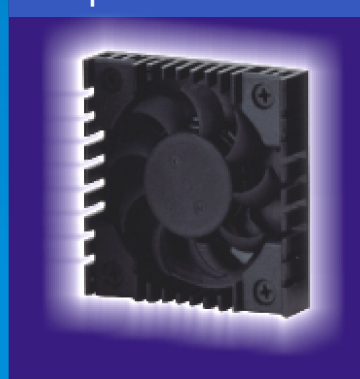
超小型散熱風扇系列
Extra Mini Fan series



散熱風扇AC系列
AC Axial Fan
Series



超小型冷卻器系列
Chip Cooler Series



依照客戶產品
應用與空間尺
寸來選擇採用
何種產品作為
散熱工具



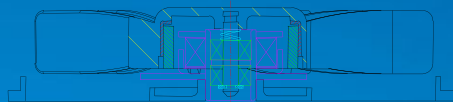
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- 目前 ADDA 風扇之軸承結構大致可區分為
S: Sleeve bearing system(套筒軸承/滑動軸承)
2B: 2 ball bearings system(滾珠軸承)
1B1S: 1 ball+ 1 sleeve bearing system
HYPRO: Hypro bearing system(含油軸承)
FDB bearing structure <NEW>(流體動壓軸承)
等五種結構。

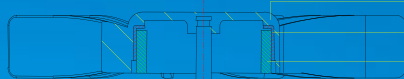
※選用風扇之軸承系統，
使用壽命與成本考量都
是相關聯的！



2 ball bearings structure



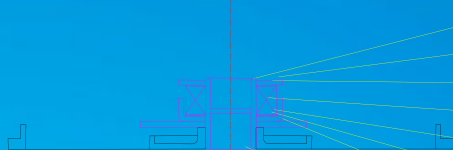
組立圖



扇葉
馬達殼
橡膠磁鐵
軸心
彈簧



滾珠軸承



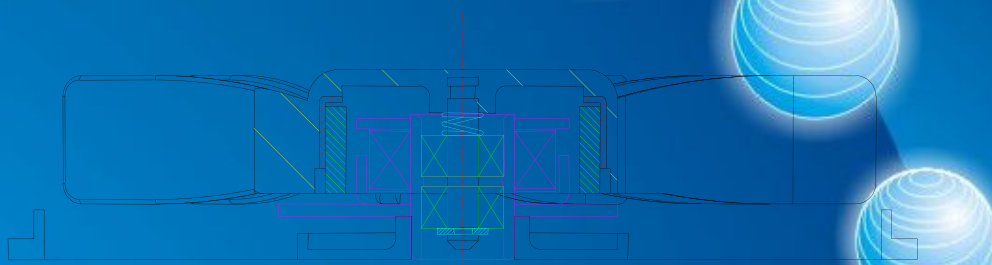
軸套
上定子
絕緣片
線圈
絕緣片
下定子
PCB
外框



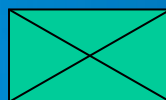
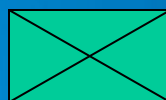
滾珠軸承

扣環 $\phi 0.3$

2B TYPE



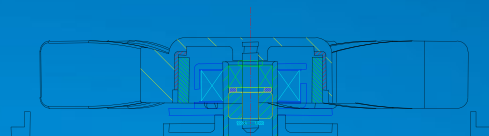
2B-結構概圖



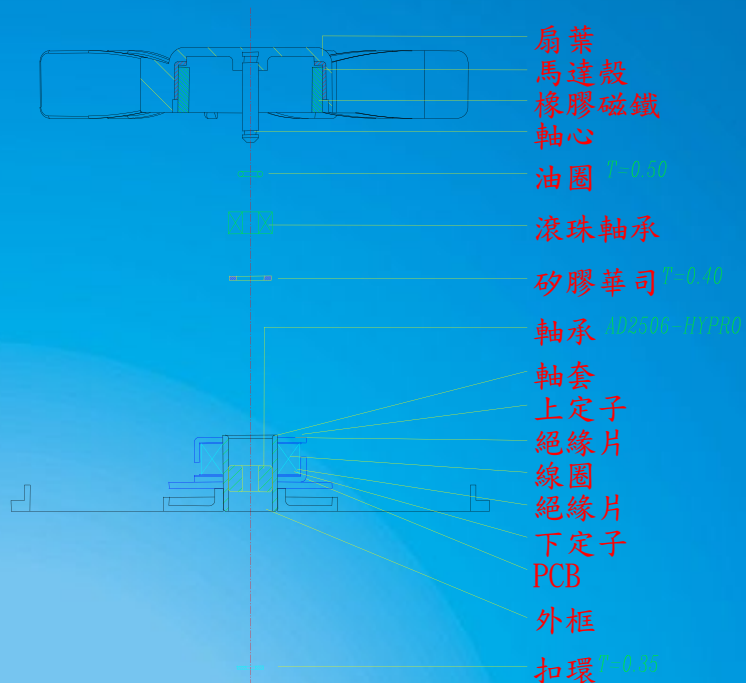
	SNAP RING
	SHIELDS - Double metallic shields reduce contaminants and lubricant leakage.
	CAGE - Two-piece (R) Ribbon type; Crown type (H), steel or other materials available.
	BALL - Standard is grade 10. up to Grade 3 can be supplied.
	INNER RING - Made of either DD material stainless steel or chrome alloy steel, both heat-treated for hardness.
	OUTER RING - Made of either DD material stainless steel or chrome alloy steel, both heat-treated for hardness.
	SEALS - Rubber and teflon seals also available.



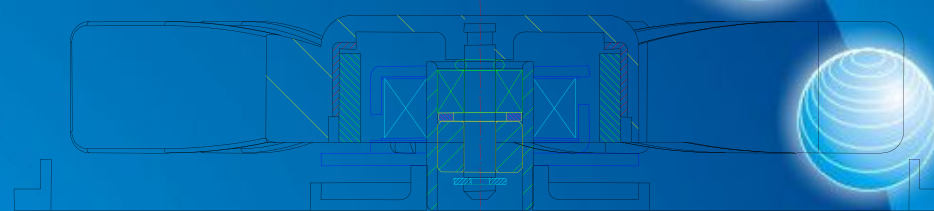
1 ball+ 1 sleeve bearing structure



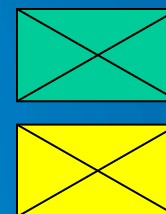
組立圖



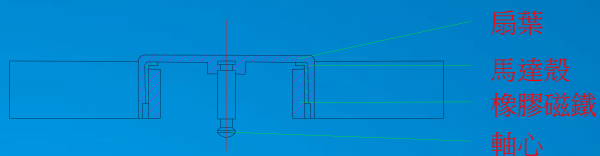
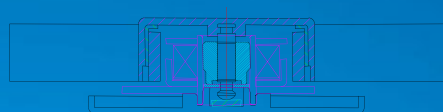
1B1S TYPE



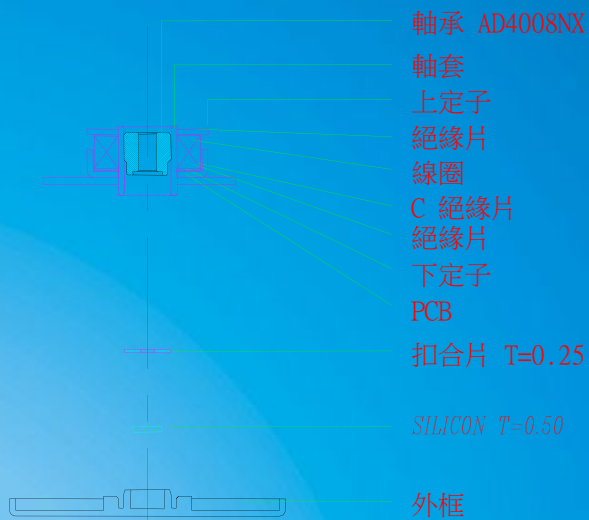
1B1S 結構概圖



Sleeve & Hypro bearing structure

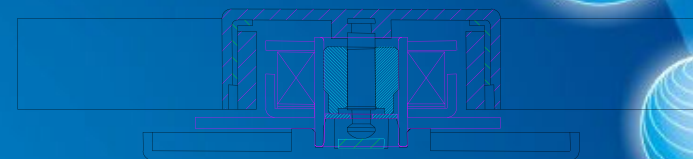


扇葉
馬達殼
橡膠磁鐵
軸心

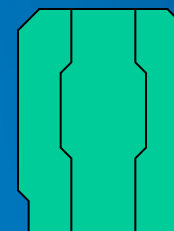


軸承 AD4008NX
軸套
上定子
絕緣片
線圈
C 絕緣片
絕緣片
下定子
PCB
扣合片 T=0.25
SILICON T=0.50
外框

NEW HYPRO TYPE



NEW HYPRO 結構概圖



FDB bearing structure

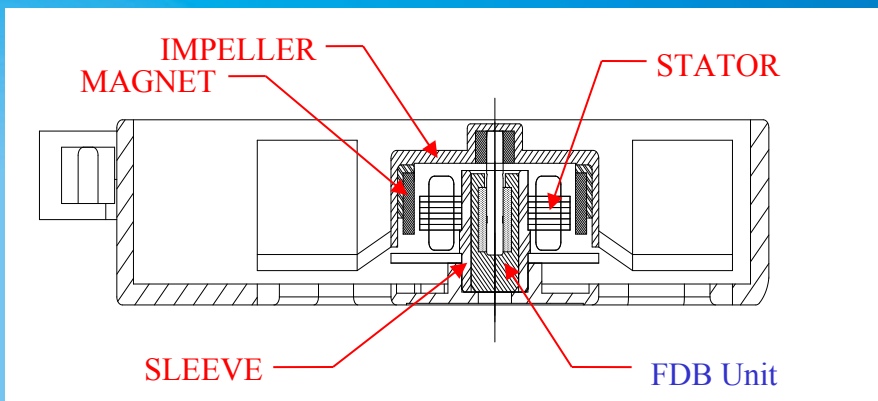


影響風扇壽命的軸承系統

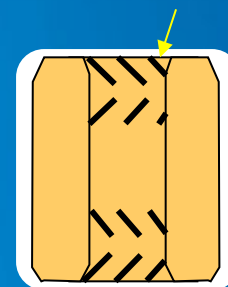
最新設計之FDB軸承系統！

FDB : Fluid Dynamic Bearing

流體 動壓 軸承



具有導油刻溝設計於開口處



FDB軸承剖面



<http://www.adda.com.tw>

1-8. Products Introduction



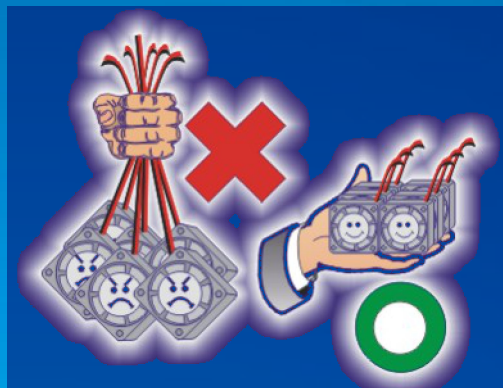
Different bearing fan providing



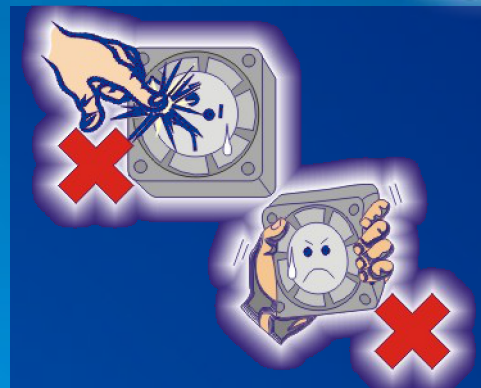
	Sleeve	Hypro	1B1S	Ceramic	2BB	FDB
Release Year	1989	1992	1989	2005	1989	2002
Cost Range	Lowest	Lower	Middle	Middle	Higher	Higher
Noise (Only Rotor /AD9225 / 3100 rpm / 0.3m)	Higher 26dB(A)	Middle 25dB(A)	Highest 27dB(A)	Middle 25dB(A)	Lower 24.4dB(A)	Lowest & Stable 21.3dB(A)
Life Expectancy (Hours/L10/ 40°C)	30,000	40,000	50,000	60,000	50,000	60,000
Operation Temperature	Under 70°C	Under 70°C	Under 70°C	Under 90°C	Under 90°C	Under 90°C
Recommendation	Easy to Oil Leakage	Easy to Oil leakage It should be protected by protective structure.	Noisy	Replace 1B1S		Replace 2BB
Apply to	Power Supply, Case fan	N/B, Case Fan, VGA cooler	N/B, Hub, CPU cooler, Projector	CPU cooler, Server,	N/B, Projector, PDP-TV, VGA cooler, Server	PDP-TV, N/B, Projector



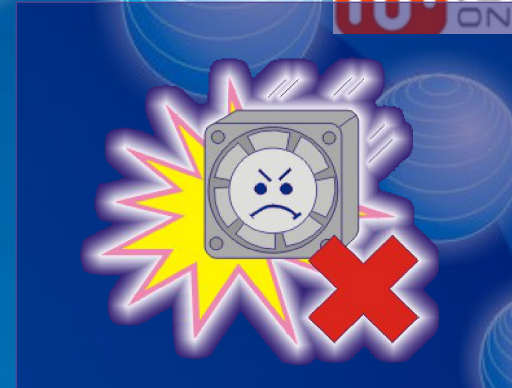
風扇使用注意事項



1. 取用風扇，輕取外框兩側，不可拉扯導線。



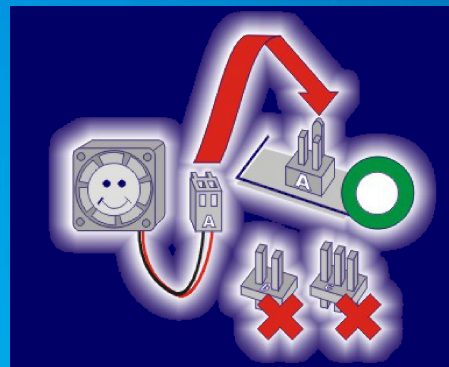
2. 取用風扇，不可碰觸或擠壓扇葉與外框。



3. 風扇嚴禁掉落地面，或敲擊外框任何面。



4. 風扇電源需依照規格電壓安裝使用。



5. 風扇電源連接器請使用原廠製造之端子座。

向客戶宣導正確的使用觀念能減少客訴與提昇公司形象



<http://www.adda.com.tw>

ADDA 風扇性能相關技術資料



URL: <http://www.adda.com.tw/>



ADDA-Technical Supports - Microsoft Internet Explorer
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Installation Guide
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ADDA The First Name in Forced Convection Cooling Technology.
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強制對流科技

您不可不知
如何從特性曲線判定風扇性能
風扇使用注意事項
HYPRO軸承科技
第三條導線設計

承風扇，高達五萬小時以上。其中只有HYPRO軸承微型風扇不列，它們是專為輕、薄、短、小之筆記型電腦的特殊散熱需求環境設計而成，特殊的潤滑效果，讓它運轉散熱時，安安靜靜！

傳統含油軸承結構圖
新HYPRO含油軸承結構圖
U.S Patent

降低電腦、網路設備及其週邊設備溫度，提升運算速度，超越未來。
不久前，個人電腦的悲觀主義者預言，高溫效應將使電腦設計者於創作更快的電腦晶片時成爲最大阻力。Hypro風扇能成功地降低P-III CPU，甚至於P-4 CPU的溫度，其且防止過熱引起的損壞。多項實驗證明Hypro風扇之降溫性能將可超越目前其它風扇。其適用範圍，不僅應用在P-III CPU、P-4 CPU冷卻器及筆記型電腦上時，

完成
聯絡我們

Structure
Airflow
Air Pressure
Noise
Reliability / Poroduct Life
CPU Cooler
Customized Design
Installation Guide
Contact

ADDA has created the world's first and (15x15x6mm) HYPRO fans. This design manufactured innovation lasts twice as long as sleeve models and costs less than durable bearing fans. This innovative design has an insure structure without o-ring and washer. Thus overwhelmingly reduce the friction, temperature rise and noise. Not only does this improve the rate of assembly and increasing the output, but it also prevents the shaft of the heat dissipation fan and the bearing from chafing thereby increasing the life of the fan. Moreover, it performs longer life than ball-bearing fan over 50,000 hours at ambient temperature !!

New Hypro bearing system Motor Design
U.S Patent