

AVTRON 電阻器 及 電抗器 可應用在國內法規驗證標準發電機之頻率和電壓變動率測試 (PF = 0.8) :

『可同時將輸出端之負載電流調整至滿載電流 (電壓) 後，切斷開關，並於瞬間將該開關由 OFF 切換至 ON，測其頻率 (電壓) 之變化。』



AVTRON 負載箱設備

負載箱是一種為發電機、不斷電 (UPS) 等動力設備提供測試的電子負載，同時也作為備用發電機消除 "Wet Stacking" 現象所必備的日常維護設備而廣泛使用。

『備用發電機使用的燃料為柴油，柴油在低於 50% 負載或空載的情況下，必定會形成一種 "Wet Stacking" 的現象即輕載造成燃油不充分燃燒，而造成積碳，發電機效率降低，最終導致起動失敗、動力不足、過度燃油、過早開缸維修直至報廢』。AVTRON 大多數電阻型負載採用專利的 Helidyne™ 電阻材料，這種由 AVTRON 專利設計、製作精良的電阻絲選用防腐銻合金材料，實際使用時只用到設計容量的一半，提供較長的使用壽命及優越穩定性能，消除了負載設備使用後冷卻的必要。

應用領域

- ◆ 發電機設備的工業試驗。
- ◆ 消除發電機 "Wet Stacking" 現象。
- ◆ 備用發電機周期性運轉維護試驗。
- ◆ UPS 設備的工業試驗。
- ◆ 蓄電池系統試驗。
- ◆ 接地系統試驗。
- ◆ 優質供電系統負載優化試驗。
- ◆ 渦輪發電機的工業試驗。

改善柴油發電機的可靠性

無論柴油發電機的服務商還是製造商都認為：精心組織的柴油發電機日常運轉維護計劃對於保障柴油發電機緊急情況下的起動是至關重要的。負載箱正是這一維護計劃中最重要的組成部分之一，因為負載箱設備在不中斷實際在用設備的情況下提供測試系統的方法。

鋁鐵合金負載箱外殼的優勢

負載箱是一種將電能轉化成熱能的裝置，設備內大部分熱量通過冷卻風扇冷卻，但是設備外殼也會吸收一部分熱量，因此負載箱必需考慮能夠耐高溫材料。AVTRON 負載箱的外殼選用特種鋁鐵合金材料，這種材料無論其耐熱性及耐腐蝕性都比傳統的鍍鋅鐵皮材料外殼更加優越。

規格

(1) 電阻負載箱額定容量：

提供負載精度於額定電壓下為 $-0/+5\%$ 內。

(2) 電阻負載箱之負載分段：

各段負載附有保險絲保護，保險絲為使用 UL T 級 600 V 遮斷容量額定為 2000 KA。

(3) 電阻負載箱部份：

Avtron Helidyne™ 電阻器為直接置於冷卻風道中增加冷卻效果，每分段電阻器為使用電阻線螺旋纏繞於整支不鏽鋼之鋼管上並受其支撐。電阻器之構造使其可以不需要經過延長冷卻過程。為了使電阻值於冷態至最高運轉溫度間之變化能保持於可忽略之值內，電力電阻器為設計使用較低於電阻線之額定最大操作溫度以下。

(4) 電抗負載箱部份：

採用三相鐵芯構造具有以下特性；鐵芯及線圈為開路式構造， 130°C 溫昇於額定電壓下，自動復歸之 180°C 溫控開關安裝於每一繞線處，鋁製繞線， 220°C U.L. 認證之絕緣系統；0.05 功因，最大波形歪率在 5% 以內。

(5) 負載箱之冷卻部份需求：

電阻器組為使用三相之風扇馬達去提供所需要之冷卻空氣給電阻器元件。電抗器部份為利用 120V，單相風扇馬達去提供電抗器之額外冷卻。

(6) 負載箱控制部份之需求

負載箱可由遠方手持式操作控制器做控制，附一緊急停止按鈕及電源 ON/OFF 開關於操作控制器上（選配）。控制器附有一整體之液晶顯示器，其顯示器需經過 U.R/C.E. 認可並附背光板，可於陽光下或晚上時都可看見顯示。控制器工作電壓為 DC24V，操作控制器和可程式控制器間為以 RS-485 做通訊。附有過溫度保護、風壓差開關、送風機過載保護。

(7) 負載箱構造

負載箱之構造為將電阻器及電抗器及相關之控制元件安裝於一共同基座上，負載箱內包括有電阻器組成，電抗器組成，控制／保護電驛及風扇組成。所有負載箱之外殼為使用鋁合金鋼板隔熱及防腐蝕能力強，所有外部之支撐架則為不鏽鋼。

(8) 測試及品質要求

每一負載箱都由 Avtron 公司確實做測試包括電氣功能試驗及確認有和組裝圖面及規範符合，Avtron 公司並會保留做成資料檔供買家查詢用。所有測試安全保護回路有去確認符合規範要求。測試為依據 Avtron 公司之測試程序書進行。測試程序書於客戶需要時可提供。Avtron 公司採用 ISO9001 品質認證系統，所有儀器需做刻度檢查時均會依照可查得之國家標準做保持校正。



發電機負載測試機 (Load Bank)

Permanent Load Banks (固定式電阻器 50 KW ~ 3000 KW)



Standard Models

- [Spirit \(LSH\)](#) (50-150 KW)
- [K675A](#) (200-500 KW)
- [K875A](#) (750-3000 KW)

Avtron's permanently installed resistive load banks are ruggedly constructed units typically rated between 50KW and 3000KW. Designed for outdoor operation, these units feature highly reliable Avtron Helidyne load elements. These elements are mounted in enclosures equipped with screened and louvered intake and exhaust openings to protect against debris, and are cooled by heavy duty blowers. These units are provided with a gasketed and heated enclosure to protect contactors and other components from condensation related problems. Remote control panels are provided with each unit. Ready for 19" rack mounting or installed in a NEMA-type wall-mount enclosure.


The Avtron Spirit Load Bank is designed for permanent outdoor installation when 50 to 150 KW loading is required. It is ideal for routine load testing of standby diesel generating systems or for factory production line testing of (UPS) Uninterruptible Power Supplies, or engine generator sets. Designed for outdoor installation on a concrete pad, the load bank utilizes a fixed louver on the exhaust opening to protect the blower motor and resistive elements from weather. A remote control panel is provided for load bank operation and includes the necessary controls and status indicators.

Helidyne is a trademark of Avtron Manufacturing, Inc.

Model: SPIRIT (LSH)	Capacity	Minimum Load Step Resolution	Voltage		Approx. Size	Approx. Weight (lbs.)
			Load	Blower		
	50 to 150KW	5KW	208VAC; 3phase 240VAC; 3phase 240/480VAC; 3phase 480VAC; 3phase 600VAC; 3phase	208/230/460VAC; 3phase; 60Hz; 1HP 575VAC; 3phase; 60Hz; 1HP	48"L, 27"W, 35"H	500
Model: K675A	Capacity	Minimum Load Step Resolution	Voltage		Approx. Size	Approx. Weight (lbs.)
	200 to 500KW	5KW	240/480VAC; 480VAC; 3phase 600VAC; 3phase	230/460VAC; 460VAC; 3phase; 2 or 5HP 575VAC; 3phase; 2 or 5HP	61"L, 47"W, 52"H	800 to 1,000



發電機負載測試機 (Load Bank)

Model: K875A	Capacity	Minimum Load Step Resolution	Voltage		Approx. Size	Approx. Weight (lbs.)
			Load	Blower		
	750KW	5 or 50KW	240/480VAC; 3phase	(1) 10HP; 460VAC	40"L, 59"W, 138"H	1,500
	1000KW		480VAC; 3phase 600VAC; 3phase	(1) 10 HP; 575VAC		2,000
	1500KW	5 or 50KW	480VAC; 3phase	(2) 10HP; 460VAC	80"L, 59"W, 156"H	3,000
	2000KW		600VAC; 3phase	(2) 10HP; 575VAC		4,000
	2500KW	50KW	480VAC; 3phase	(3) 10HP; 460VAC	120"L, 59"W, 156"H	5,000
	3000KW		600VAC; 3phase	(3) 10HP; 575VAC		6,000

Portable Load Banks (移動式電阻器 200 KW~700 KW)

Standard Models

- [Millennium \(LPH\)](#) (200-400 KW)
- [Patriot \(LPV\)](#) (500-700 KW)

Optional equipment available includes:

- Vinyl Storage Cover
- Special Blower Voltages
- Control Power Transformer

Avtron's complete line of portable resistive load banks ranges in size from 10KW to 700KW. For larger ratings, Avtron can provide trailer mounted models to satisfy most load testing requirements at remote sites.

Built to resist vibration encountered during transportation, Avtron portable load banks are lightweight, compact, reliable, and save money because they are built to last.



These Avtron units feature durable Helidyne[®] resistive elements cooled by high volume blower assemblies and integral operator control panels. Switches on the control panel actuate 120VAC contactors to safely isolate the operator from high voltage circuits. Control power can be derived from the power source under test, or from an external 120VAC source. The ADMS (TM) Digital Metering system is standard on units rated 25 KW or higher.

Avtron's portable load banks are constructed using heavy gauge aluminized steel for years of reliable service. These units are fitted with lockable casters or rubber shock mount feet for easy movement from one test site to another using common pickup trucks or vans.

ADMS (TM) and Helidyne (TM) are trademarks of Avtron Manufacturing, Inc.



發電機負載測試機 (Load Bank)

Model: MILLENNIUM (LPH)	Capacity	Minimum Load Step Resolution	Voltage		Approx. Size	Approx. Weight (lbs.)
			Load	Blower		
	200 KW	5KW	240/480VAC; 3phase 600VAC; 3phase	120VAC; 1phase; 1HP	47"L, 34"W, 52"H	650
	250 or 400 KW			208-230/460VAC; 3phase; 3HP 575VAC; 3phase; 3HP	56"L, 34"W, 52"H	800
Model: PATRIOT (LPV)	Capacity	Minimum Load Step Resolution	Voltage		Approx. Size	Approx. Weight (lbs.)
	500 or 700 KW	5 KW	240/480VAC; 3phase 600VAC; 3phase	208-230/460VAC; 3phase; 5HP 575VAC; 3phase; 5HP	61"L, 34"W, 75"H	1,150

Reactive Load Banks - Permanently Installed (固定式電抗器 150 KVAR~1875 KVAR)


Standard Models

- [K841](#) (150-375 KVAR)
- [K841B](#) (375-1875 KVAR)

Avtron inductive/reactive load banks (KVAR) are typically used in combination with resistive load banks (KW) to test a generator or power source at 0.8 power factor (lagging). The reactive load bank should be sized at 75% of the resistive load bank KW rating to achieve a 0.8 power factor. The resistive and reactive load banks are connected and operated in parallel.


Models such as the K841 and K841B range from 50 - 1500 KVAR. They are designed for indoor or outdoor permanent installations and come complete with remote operator control panels (19" rack mount or NEMA enclosed).

Avtron inductive/reactive load banks feature non-saturating single phase and three phase iron core load reactors.

Model: K841	Capacity	Minimum Load Step Resolution	Voltage		Approx. Size	Approx. Weight (lbs.)
			Load	Blower		
	150-375 KVAR	3.75 KVAR	480VAC; 3phase 240/480VAC; 3phase 600VAC; 3phase	120VAC; 1phase; 1/8HP x 1, 2, or 3	54"L, 52"W, 92"H	5,000 at 375KVAR



發電機負載測試機 (Load Bank)

Model: K841B	Capacity	Minimum Load Step Resolution	Voltage		Approx. Size	Approx. Weight (lbs.)
			Load	Blower		
	375-1875 KVAR	3.75 KVAR	480VAC; 3phase 240/480VAC; 3phase 600VAC; 3phase	120VAC; 3/4HP	116"L, 66"W, 80"H	7,000 to 10,000

Radiator and Duct Mounted Load Banks

(散熱水箱式電抗器 10 KW~1000 KW)


Standard Models

- [K711/K711A](#)
(10-1000 KW)

The Avtron model K711 and K711A load banks are designed for radiator or duct mounting on diesel engine generator sets. The load bank is permanently mounted to the front of the engine generator and sized to match the width and height of the radiator core or exhaust duct opening. The load bank utilizes the engine cooling air rather than an internal cooling fan found on conventional load banks. A top and bottom mounting flange, or removable duct adapter flanges are supplied for mounting and ease of installation.

The load banks are typically sized at 50-60% of the generator KW rating and used to periodically test the generator or to supplement the real generator load to minimize the effects of diesel engine "wet-stacking".

Helidyne is a trademark of Avtron Manufacturing, Inc.

Model: K711/K711A	Capacity	Minimum Load Step Resolution	Voltage		Approx. Size	Approx. Weight (lbs.)
			Load	Blower		
	10-1000 KW	as required	208VAC; 240VAC; 400VAC; 480VAC; 600VAC; 3phase	N/A	Customer Defined	-



誥鑫企業有限公司
ARITH COMPANY LTD.
 地址：台北市復興北路427巷30號
 電話：(02)2717-5038
 傳真：(02)2717-5039
 e-mail: taipei@arith.com.tw
 網址：http://www.arith.com.tw