



Liebert HIROSS for Telecom

HIGH PERFORMANCE AIR CONDITIONING

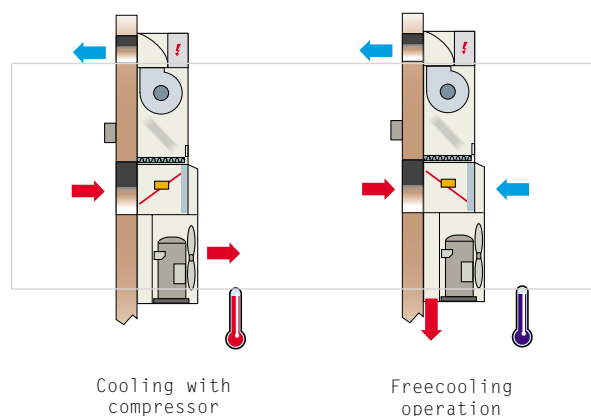
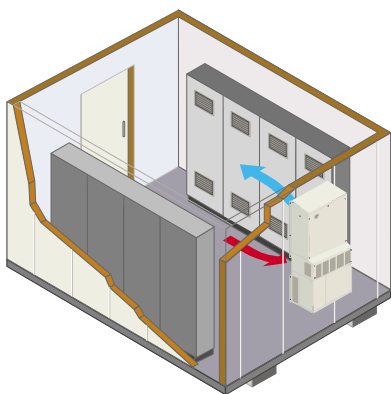


Thermal Management for
BTS & Remote Nodes



HIWALL

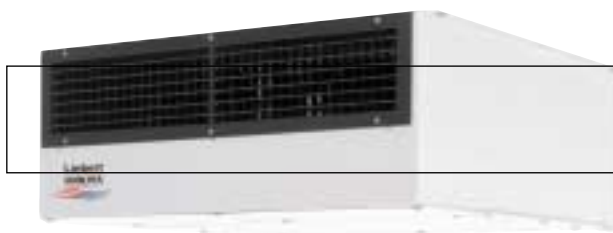
The Hiwall P0 series (Packaged Outdoor unit), matches its compact structure with plain installation and unparalleled versatility of use. Designed to operate in harsh climate conditions, the standard features offered by Hiwall include antivandalism protection and heavy duty construction for optimum installation outside telecommunication shelters. The Freecooling and the Emergency Cooling options are built into the unit, which only need to be laid and connected to the mains to be functional. Furthermore, the special "UMTS" version allows increasing of the cooling capacity on-site in a few minutes, without using skilled personnel: same wall openings for Hiwall from 4 to 14 kW, lifting devices, fast electrical plug connectors, auto-commissioning software.



Performances and technical data

	50Hz						60Hz					
Model	P004	P005	P006	P008	P010	P014	P004	P005	P006	P008	P010	P014
Total/sensible cooling capacity. ⁽¹⁾ kW	4.5/4.4	5.5/4.9	6.3/5.6	8.2/8.2	10.7/10.2	14.7/14.1	4.7/4.7	5.4/5.1	6.3/5.3	7.7/7.7	10.4/10.1	14.4/13.8
Total/sensible cooling capacity. ⁽¹⁾ TR	1.3/1.2	1.5/1.4	1.8/1.6	2.3/2.3	3.0/2.8	4.1/3.9	1.3/1.3	1.5/1.4	1.7/1.5	2.1/2.1	2.9/2.8	4.0/3.8
Air flow m ³ /h	1510			2670			1435			2800		
Electrical Power supply V/ph/Hz	230/1/50			400/3/50			230/1/60			230/3/60 - 460/3/60		
Compressor	Rotary			Scroll			Rotary			Scroll		
Electrical heating (opt.) kW	3			6			3			6		
Width/height/depth mm	800/1585/410			1055/2095/500			800/1585/410			1055/2095/500		

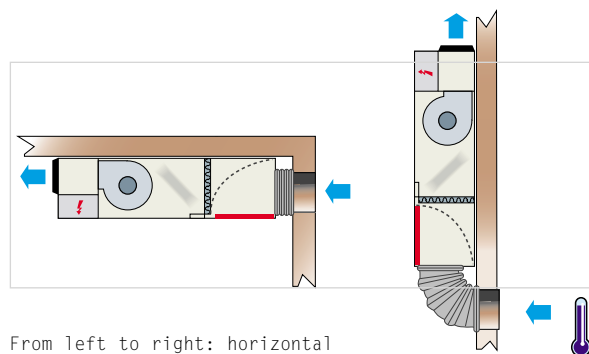
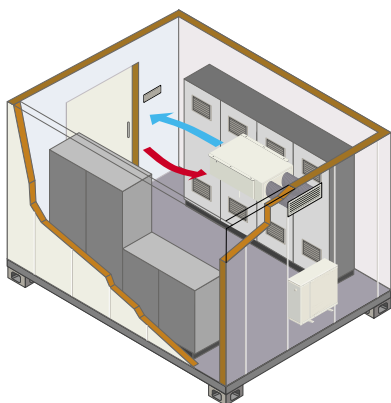
⁽¹⁾ External temperature 35°C; return conditions 27°C / 47% R.H.



H I S P



Hisp air conditioners are the split-level solution for technological rooms and telecommunication sites: they are composed of an internal evaporating unit (SE, Split Evaporator) and an external single-condensing section (SC, Split Condenser). The SE evaporator unit presents an innovative modular concept, being available in the compact version or complete with additional module for the Freecooling option. The air conditioners may be installed either on a ceiling or on a wall, allowing maximum flexibility of use in the available space. The remote display allows flexibility in positioning the control interface.



From left to right: horizontal and vertical installation. Units in Freecooling mode as example.

Performances and technical data

	50Hz						60Hz					
Model	SE+SC04	SE+SC05	SE+SC06	SE+SC08	SE+SC10	SE+SC14	SE+SC04	SE+SC05	SE+SC06	SE+SC08	SE+SC10	SE+SC14
Total/sensible cooling capacity. ⁽¹⁾ kW	4.5/4.4	5.5/4.9	6.3/5.6	8.2/8.2	10.7/10.2	14.7/14.1	4.7/4.7	5.4/5.1	6.3/5.3	7.7/7.7	10.4/10.1	14.4/13.8
Total/sensible cooling capacity. ⁽¹⁾ TR	1.3/1.2	1.5/1.4	1.8/1.6	2.3/2.3	3.0/2.8	4.1/3.9	1.3/1.3	1.5/1.4	1.7/1.5	2.1/2.1	2.9/2.8	4.0/3.8
Air flow indoor unit SE m ³ /h	1510		2670		3950		1435		2800		4050	
Electrical Power supply V/ph/Hz	230/1/50			400/3/50			230/1/60			230/3/60 - 460/3/60		
Dimensions indoor unit SE ⁽²⁾												
Width/depth/height mm	800/800/310			1055/1095/395			800/800/310			1055/1095/395		
Dimensions outdoor unit SC												
Width/depth/height mm	800/285/530			1055/500/695			800/285/530			1055/500/695		

⁽¹⁾External temperature 35°C; return conditions 27°C / 47% R.H.

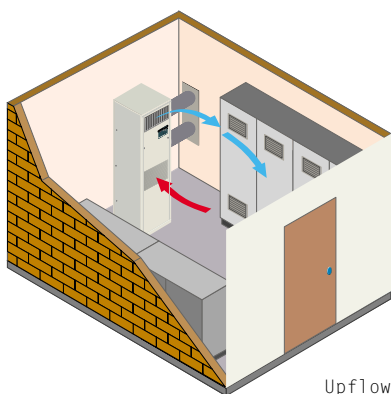
⁽²⁾Dimensions of the basic version; the Freecooling optional module depth is 250 mm depth (04, 05, 06 models) or 300 mm depth (08, 10, 14 models).

H I L I N E

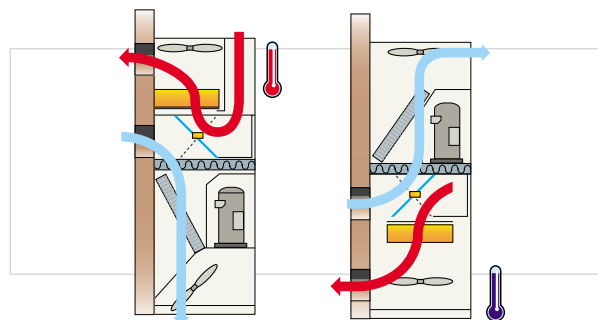


The Hiline PI series (Packaged Indoor unit) is the modular packaged solution for installation inside the area to be conditioned. Available in upflow or downflow versions, Hiline makes use of innovative fans with high available pressure, for direct channeling towards the outside or through flexible pipes. The direct expansion cooling circuit is equipped with scroll compressor and built-in condenser section, with the fresh-air Freecooling option by means of a modulating damper and exhaust air rejection. The units are pre-filled with refrigerant and completely regulated and tested in the factory.

Where there is minimum space, the compactness of the Slim version solves the problem. In the space normally occupied by a "Telecom rack" it is possible to install two Hiline Slim units, one of which in stand-by, which are also available with the Freecooling option.



Upflow version as example.



From left to right: Downflow and Upflow versions. Units in Freecooling mode as example.

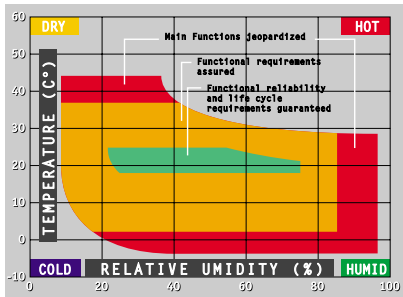
Performances and technical data

	50Hz											
Model ⁽¹⁾	PKS3	PKS4	PI05U	PI07U	PI10U	PI12U	PI15U	PI05D	PI07D	PI10D	PI12D	PI15D
Total/sensible cooling capacity. ⁽²⁾ kW	3.9/3.3	4.4/3.6	5.1/5.1	7.4/7.0	10.7/10.7	12.8/12.8	16.5/15.7	5.1/5.1	7.4/7.2	10.7/10.7	12.9/12.9	15.7/15.7
Total/sensible cooling capacity. ⁽²⁾ TR	1.1/0.9	1.2/1.0	1.4/1.4	2.1/1.9	3.0/3.0	3.6/3.6	4.6/4.4	1.4/1.4	2.1/2.0	3.0/3.0	3.6/3.6	4.4/4.4
Air flow m ³ /h	1000		1950	2050	3420	3780	4000	2090	2200	3570	3890	4200
Electrical Power supply V/ph/Hz	230/1/50		230/1/50		400/3/50			230/1/50		400/3/50		
Compressor	Rotary		Scroll					Scroll				
Electric heating (opt.) kW	3		4.5		6			4.5		6		
Width/depth/height mm	295/600/2000		650/650/1990		900/750/2050			650/650/1990		900/750/2050		

⁽¹⁾PKS3 and PKS4 are available with front air delivery only. Other models (PI05-15) are available in Downflow (Under) or Upflow (Over) versions.

⁽²⁾Outdoor temperature 35°C; return conditions 27°C / 47% R.H.

Why is conditioning essential?



Maintaining precise environmental conditions guarantees long-lasting and efficient operation of electronic equipment for telecommunications. Optimum operating conditions ensure user satisfaction without loss of traffic and image, especially in critical

sites in densely populated areas or where access is difficult. These situations become more and more problematic as the network grows. Additionally, the increased working life of the equipment allows maximum return on investment.

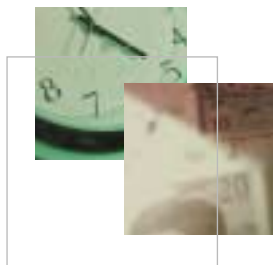
How to condition?



For anyone running a telecommunication network, the best option is the use of specific solutions developed by companies able to assist the operator, from the project initiation

to the network operation. The use of solutions specifically designed for the telecommunications market provides maximum flexibility in every type of site and condition.

What does it costs?



It has been demonstrated that the running costs of dedicated High Performance Air Conditioning solutions are distinctly lower than those using comfort air conditioners. As comfort air conditioners are not designed for continuous operation,

they have a short operating life and require replacement often. They also have higher installation costs, higher running costs due to lower efficiency, more frequent maintenance requirements and excessive consumption of spare parts.

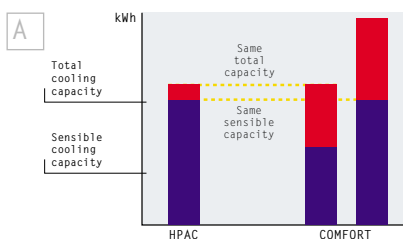
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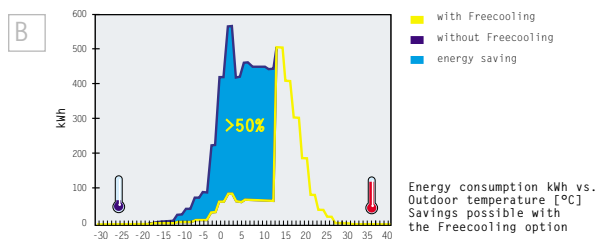
The Quality Management System of the High Performance Air Conditioning Division of Liebert HIROSS SPA is certified by Lloyd's Register Quality Assurance to ISO 9001:1994.



Energy saving



A Designed for hi-tech applications, the units are equipped with high efficiency compressors (scroll or rotary type) and wide surface coils, for high sensible/total ratios; a comfort unit with higher total capacity

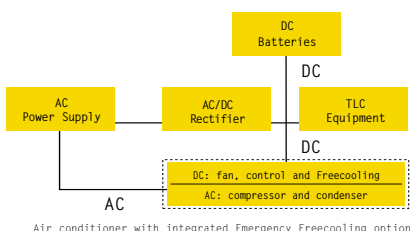


is required to achieve the same sensible cooling.

B The units are available with the Freecooling option which, through a modulating damper, provides fresh air inlet,

allowing considerable energy saving, and reduces wear of the compressor. In combination with a high efficiency system, this represents the best solution in terms of value for money.

Emergency operation



In the event of a break in the mains supply of AC power, the units can operate from direct DC supply or external DC/AC inverter, guaranteeing ventilation, possible cooling

with an integrated Freecooling system, alarm management. This avoids the need to install other accessories (for example external fans, additional control systems, etc.).

Continuous, Quiet Operation

Continuous duty for Liebert HIROSS units: because of their critical application, non-stop operation

is assured 24 hours per day, 365 days per year. The fan speed modulation on the condenser

expands the operating range and guarantees silent running especially during the night.

Longer Lifetime

The solid construction and use of high quality components optimised for hi-tech applications, increase the durability of the units

significantly. Thanks to dedicated to dedicated options, such exchangers either with epoxy treatment or copper-copper type,

or aluminium alloy cabinet on Hiwall, the units are suitable for the installation in critical conditions.

Intelligent control

The units are equipped with Microface or Hiromatic microprocessors, that precisely monitor 24 hours a day all environmental and operating data, and also control functions such as

stand-by, rotation and team working. Both Microface and Hiromatic may also be integrated in the supervision systems of the telecommunication network. As a unique characteristic,

Microface is able to send text messages (SMS) about either the status of the unit or alarms directly on the display of GSM mobile phones, allowing quick and cost-efficient maintenance.

Easy maintenance

A complete range of dedicated accessories makes the installation easy, quick and reliable.

Most of the standard components are placed in the front side, in separate compartments: this means

complete accessibility for regular maintenance of the units in operation.