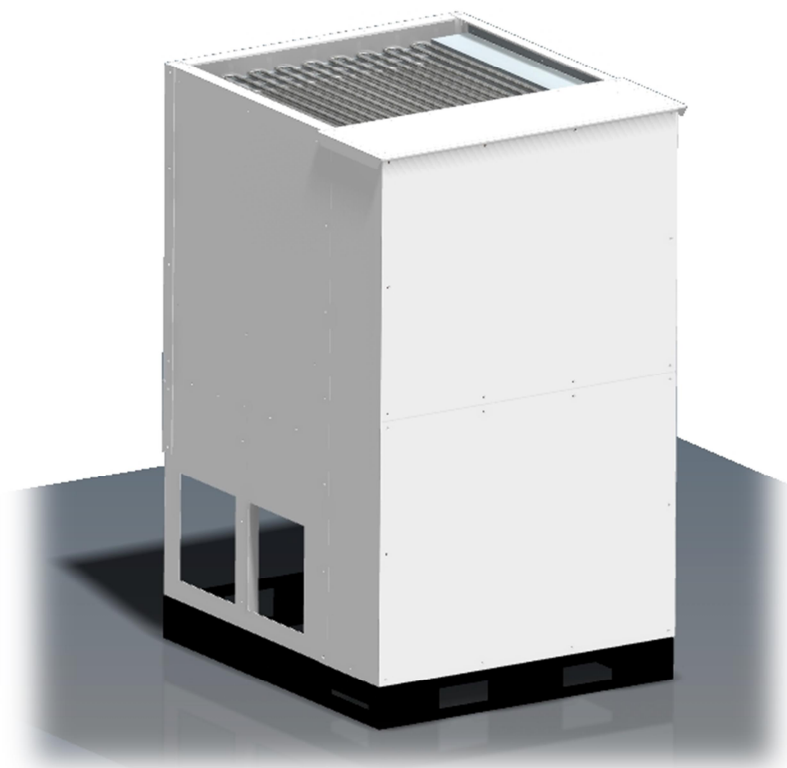


Technical specifications (ENG – 2017)



AC RESISTIVE LOADS AND DUMMY LOADS

GENERAL SPECIFICATIONS

General description:

Resistive loads are housed in a vertical structure of galvanized or powder coated RAL 7035 steel sheet, built to operate outdoors too.

Heating elements are tubular shaped, with dissipating fins for the higher power values, made of stainless steel and cooled by forced ventilation.

A good heat reduction is a very important factor to make possible that resistive elements can work at quite low temperatures: big fans and hyper-ventilation reduce the thermal drift ensuring a stable value of power applied to generator, also for long time applications.

The power values of load steps, progressively increasing according to a binary logic, allow to have a high resolution on the whole scale of power values, thus a power modulation characterized by a great precision.

The whole power scale can be modulated with a resolution of 1 kW, in compliance with lead times prescribed by ISO 8528 about generator's endurance of instantaneous load.

Safety outfit:

Safety for operators and devices is the most important factor we consider while making a new project. So, we have provided the following precautions to get a high safety level for these equipments:

- Each load step is protected by its own three fuses.
- A thermal switch is provided to protect resistors from any abnormal operation of ventilation system. Upon request, safety can be doubled by adding a pressure switch.
- An emergency button to instantaneously disconnect load and stop the cooling fan.
- The shutdown of cooling airflow is delayed after the disconnection of all the power steps, to ensure a longer life for heating elements.
- Protecting nets in front of impellers and on the heating compartment accesses.
- Low temperature of side walls by a peculiar internal design.

Technical specifications summary:

Tolerance on ohmic nominal value: $\pm 5\%$ for each heating element.

Airflow direction: vertical, from bottom to top.

Cooling fans standard execution: carbon steel conveyor, impeller in reinforced glass fiber (PAG), engine IP55, insulation class F, efficiency EFF2, service S1, tropicalized.

Power connection: on terminal blocks up to 64 kW. On copper bars over 64 kW.

Easy handling by forklift truck or eye-bolts.

Commands and controls: remote, connections of command cables on terminal strip.

Electric components placed on the front side, inside a compartment with IP55 protection degree.

Polyester powder coating suited for outdoor installation and UV protection.

Also suitable for DC applications (DON'T consider standard reference tables: please, contact us!)

AC BASE MODULES – Specifications tables

List of standard modules

Code	kW	kVA (P.f. 0,8)	Dimensions (WxHxD, mm)	Size*	Weight (approx.)	Steps	Fan power (400 Vac, 50 Hz)	Airflow (m ³ /h)	Noise level	Finish
CR 31-5	31	38	573x1015x825	G1	95 kg	5	1,1 kW, 2800 rpm	5.750	74 dB(A)	Galvanized
CR 63-6	63	78	573x1015x825	G1	105 kg	6	1,1 kW, 2800 rpm	5.750	74 dB(A)	Galvanized
CR 95-7	95	118	700x1350x825	G2	150 kg	7	2,2 kW, 2800 rpm	9.950	82 dB(A)	Galvanized
CR 127-7	127	158	700x1350x825	G2	165 kg	7	2,2 kW, 2800 rpm	9.950	82 dB(A)	Galvanized
CR 191-8	191	238	700x2050x1370	G3	310 kg	8	2x 1,1 kW, 2800 rpm	11.500	80 dB(A)	RAL 7035 coat.
CR 255-8	255	318	700x2050x1370	G3	360 kg	8	2x 2,2 kW, 2800 rpm	19.900	86 dB(A)	RAL 7035 coat.
CR 351-9	351	438	1150x2050x1370	G4	480 kg	9	4 kW, 1400 rpm	33.800	81 dB(A)	RAL 7035 coat.
CR 415-10	415	518	1150x2050x1370	G4	540 kg	10	4 kW, 1400 rpm	33.800	81 dB(A)	RAL 7035 coat.
CR 511-9	511	638	1150x2050x1370	G4	610 kg	9	5,5 kW, 1400 rpm	38.200	84 dB(A)	RAL 7035 coat.
CR 607-10	607	758	1150x2050x1370	G4	690 kg	10	5,5 kW, 1400 rpm	38.200	84 dB(A)	RAL 7035 coat.

Listed powers tolerance: +/- 5%. All powers are referred at 400 Vac - 50 Hz power supply.
Weight and dimensions can be subject to technical improvements without notification.

List of provided load steps for standard modules

Code	kW	N. Step	1kW	2kW	4kW	8kW	16kW	32kW	64kW	96kW	128kW	256kW
CR 31-5	31	5	x	x	x	x	x					
CR 63-6	63	6	x	x	x	x	x	x				
CR 95-7	95	7	x	x	x	x	x	2x				
CR 127-7	127	7	x	x	x	x	x	x	x			
CR 191-8	191	8	x	x	x	x	x	x	2x			
CR 255-8	255	8	x	x	x	x	x	x	x		x	
CR 351-9	351	9	x	x	x	x	x	x	x	x	x	
CR 415-10	415	10	x	x	x	x	x	x	x	2x	x	
CR 511-9	511	9	x	x	x	x	x	x	x		x	x
CR 607-10	607	10	x	x	x	x	x	x	x	x	x	x

EXPANSION MODULES, DUMMY LOADS – Specifications tables

Various expansion modules can be combined to reach the aggregate total power.

Code	kW	kVA (P.f. 0,8)	Dimensions (WxHxD, mm)	Size*	Weight (approx.)	Steps	Fan power (400 Vac, 50 Hz)	Airflow (m ³ /h)	Noise level	Finish
DL 32-2	32	40	573x1015x825	G1	95 kg	2	1,1 kW, 2800 rpm	5.750	74 dB(A)	Galvanized
DL 64-2	64	80	573x1015x825	G1	100 kg	2	1,1 kW, 2800 rpm	5.750	74 dB(A)	Galvanized
DL 96-3	96	120	700x1350x825	G2	145 kg	3	2,2 kW, 2800 rpm	9.950	82 dB(A)	Galvanized
DL 128-2	128	160	700x1350x825	G2	155 kg	2	2,2 kW, 2800 rpm	9.950	82 dB(A)	Galvanized
DL 128-4	128	160	700x1350x825	G2	155 kg	4	2,2 kW, 2800 rpm	9.950	82 dB(A)	Galvanized
DL 256-2	256	320	700x2050x1370	G3	350 kg	2	2x 2,2 kW, 2800 rpm	19.900	86 dB(A)	RAL 7035 coat.
DL 256-4	256	320	700x2050x1370	G3	350 kg	4	2x 2,2 kW, 2800 rpm	19.900	86 dB(A)	RAL 7035 coat.
DL 512-2	512	640	1250x2050x1370	G4	590 kg	2	5,5 kW, 1400 rpm	38.200	84 dB(A)	RAL 7035 coat.
DL 512-4	512	640	1250x2050x1370	G4	590 kg	4	5,5 kW, 1400 rpm	38.200	84 dB(A)	RAL 7035 coat.

Listed powers tolerance: +/- 5%. All powers are referred at 400 Vac - 50 Hz power supply.
Weight and dimensions can be subject to technical improvements without notification.

List of provided load steps for expansions modules

Code	kW	N. Steps	16kW	32kW	64kW	128kW	256kW
DL 32-2	32	2	2x				
DL 64-2	64	2		2x			
DL 96-3	96	3		3x			
DL 128-4	128	4		4x			
DL 128-2	128	2			2x		
DL 256-4	256	4			4x		
DL 256-2	256	2				2x	
DL 512-4	512	4				4x	
DL 512-2	512	2					2x

* NOTE:

N.4 box sizes available:

- Size G1 : 573 x 1015 x 825 (W x H x D, mm) up to 64 kW
- Size G2 : 700 x 1350 x 825 (W x H x D, mm) up to 128 kW
- Size G3 : 700 x 2050 x 825 (W x H x D, mm) up to 256 kW
- Size G4 : 1250 x 2050 x 1370 (W x H x D, mm) over 256 kW

STANDARD SPECIFICATIONS

<i>Description</i>	<i>Data</i>
<i>Construction</i>	Hot-dip galvanized or power coated steel sheet
<i>Control box protection degree</i>	IP 55
<i>Air flow direction</i>	Vertical
<i>Cooling</i>	Air forced
<i>Fan type</i>	Axial
<i>Blade impeller</i>	Reinforced glass fiber
<i>Rotation speed</i>	2800/1400 rpm (3600/1800 rpm, 60 Hz)
<i>Inadequate ventilation safety device</i>	Thermostat
<i>Power Supply fan</i>	From mains supply system
<i>Operation service</i>	S1, Continued
<i>Stainless steel resistors</i>	AISI 321, fins AISI 304
<i>Ohmic value tolerance</i>	+/- 5%
<i>Hot thermal drift</i>	< 3%
<i>Service operating temperature</i>	130-150 °C
<i>Maximum operating temperature</i>	300 °C
<i>Side walls temperature</i>	< 70°C
<i>Resistive element dielectric strength</i>	2Vn + 1000 Vac for 2
<i>Resistive element insulation</i>	> 50 MOhm V=1000 VDC for each element
<i>Nominal operating voltage</i>	V 400
<i>Maximum operating voltage</i>	V 440
<i>Operating frequency</i>	50/60Hz
<i>Operating temperature</i>	0 40 °C
<i>Height</i>	1000 m a.s.l.
<i>Resistors step control</i>	Four-pole contactors
<i>Step protection</i>	Fuses
<i>Resolution on whole power scale</i>	1 kW
<i>Connection</i>	Star connection with accessible neutral
<i>Power cables connection</i>	Copper bars or terminal blocks (< 64 kW).
<i>Controls connection</i>	Auxiliary terminal strip
<i>Wires lead-in</i>	From bottom

OPTIONALS ON REQUEST

- INOX Stainless Steel housing
- Heating elements suitable for aggressive environments (e.g.: saline mist)
- Safety device for NO ventilation alarm (differential pressure switch)
- Aluminum fan impeller
- INOX Stainless Steel fan conveyor
- Customizable specific powers and power steps split
- Local controls
- Measurements instrumentations (CTs, Multimeter...)
- Interference suppression filters on contactors coils.
- Upper rainproof air conveyors
- Movable on wheels
- Customizable color coating (e.g.: Military green)
- Customized projects all-in-one

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