

### Chloride® CP Range

Customized to user specification  
Full portfolio of industrial options



### Benefits

**Space savings:** more compact design means more square meters available for critical equipment, that is especially important offshore

**Design savings:** reduced inrush current eliminates the need to include costly upstream protection

**Technical and budgetary optimization.** Battery can represent a significant part of UPS budget in greenfield or brownfield projects. That's why Chloride® CP70RC is designed with a wide output DC voltage range to optimize:

- Number of battery cells
- Battery capacity and therefore the price, as per the required autonomy

**Smart access** to system data:

- User interface with large, colour touchscreen
- Colour-coded interface for a quick understanding of the system status
- Embedded event logger (up to 2000 events) and capability to export recorded events via memory stick

The Chloride® CP70RC is a range of industrial rectifiers / battery chargers that supplies high DC power in a more compact footprint. It combines the highly reliable thyristor-based topology with the proven digital control technology to offer the best performance under any electrical and environmental conditions.

### Range Overview

Combined with an industrial stand-by battery, Chloride® CP70RC rectifier-charger protects DC critical industrial equipment and processes from the damaging effects of power interruptions and losses. It features a microprocessor control that offers exceptional output stability and allows adaptability to various application requirements.

Chloride® CP70RC range of rectifiers-chargers is available from 200 A to 1300 A with three-phase input and offers several output voltages from 24 Vdc to 240 Vdc.

Chloride® CP70RC is also available with 400 Vdc output. This configuration can be combined with a Chloride® CP70i inverter to design specific and more compact double conversion AC UPS systems (up to 500 kVA).

To further improve load availability and process reliability Chloride® CP70RC is able to operate in dual or trial parallel configuration, with single or dual batteries, and can include a DC bus-tie.

### Applications

- Power generation plants
- Offshore upstream oil and gas installations
- Power transmission substations
- Conventional and renewable power generation plants



Example of Chloride® CP70RC-110V-800A-12P

## Key Features

- Continuous operation at full load at 40 °C ambient to meet industrial-level reliability requirements
- Resistance to vertical and horizontal acceleration up to 0.5 g using robust mechanical design
- Designed for 20+ years of continuous operation with appropriate maintenance plan
- Isolation transformer included
- Full compatibility with lead-acid and nickel-cadmium batteries, sealed or vented

## Technical Data

Input	
AC voltage	3 x 400V (380, 415) <sup>(1)</sup>
Voltage tolerance	+/- 10 %
Neutral configuration	Any configuration, with or without neutral
Frequency	50 Hz (60 Hz)
Frequency tolerance	+/- 5 %
Frequency range (temporary)	45 Hz to 65 Hz (with 50 Hz nominal)
Total harmonic current distortion (THDI)	< 34 % (6-pulse version) < 10 % (12-pulse version)
Inrush current	< 10 x I <sub>n</sub> (for 6-pulse and 12-pulse) < 5 x I <sub>n</sub> (for 12-pulse + harmonic filter option)

Output	
Nominal DC voltage	24 V ; 48 V ; 110-127 V ; 220-240 V ; 400 V
Output DC voltage range	17-40 V ; 36-75 V ; 88-160 V ; 176-300 V ; 296-550 V
Voltage stability (in stabilized floating mode, input within tolerance)	
• Unitary system	+/- 1 % <sup>(3)</sup>
• Parallel systems	+/- 1 % to +/- 2 % <sup>(3)</sup>
Voltage ripple	≤ 1 % RMS, in float mode, battery disconnected
Current limitation	I nominal

Battery	
Type	Lead acid or nickel cadmium, vented or recombination
Autonomy	From few minutes to several hours, on request
Battery current limitation (typical, float & boost modes)	0.1 C (lead-acid battery) 0.2 C (nickel-cadmium battery)

General data	
Operating temperature	0 to 40 °C <sup>(1)</sup>
Storage temperature	-20 to +70 °C
Relative humidity	< 95 % non condensing
Operating altitude	1000 m max without derating
Cooling	Forced cooling with N+1 redundant fans
Efficiency	81 % to 97 % according to rating
External protection	IP 20 <sup>(1)</sup> according to IEC 60529
Noise (at 1m in front of the unit)	60-72 dB according to rating
Cabinet color	Grey RAL 7032 <sup>(1)</sup>
Dimensions	Varying according to ratings & options

## Ratings

Three phase input : Output current (A) vs Output voltage (Vdc)				
24 Vdc	48 Vdc	110-127 Vdc	220-240 Vdc	400 Vdc
200 <sup>(4)</sup>	200 <sup>(4)</sup>	200 <sup>(4)</sup>	200 <sup>(4)</sup>	200 <sup>(4)</sup>
250 <sup>(4)</sup>	250 <sup>(4)</sup>	250 <sup>(4)</sup>	250 <sup>(4)</sup>	250 <sup>(4)</sup>
320 <sup>(4)</sup>	320 <sup>(4)</sup>	320 <sup>(4)</sup>	320 <sup>(4)</sup>	320 <sup>(4)</sup>
400	400	400	400	400
500	500	500	500	500
-	-	-	-	550 <sup>(4)</sup>
600 <sup>(4)</sup>	600 <sup>(4)</sup>	600 <sup>(4)</sup>	600 <sup>(4)</sup>	600 <sup>(4)</sup>
320 <sup>(5)</sup>	320 <sup>(5)</sup>	320	320	-
640 <sup>(5)</sup>	640 <sup>(5)</sup>	640 <sup>(5)</sup>	640 <sup>(5)</sup>	640 <sup>(5)</sup>
800 <sup>(5)</sup>	800 <sup>(5)</sup>	800 <sup>(5)</sup>	800 <sup>(5)</sup>	800 <sup>(5)</sup>
1000 <sup>(5)</sup>	1000 <sup>(5)</sup>	1000 <sup>(5)</sup>	1000 <sup>(5)</sup>	1000 <sup>(5)</sup>
800	800	800	800	800
1000 <sup>(4)</sup>	1000	1000	1000	1000 <sup>(5)</sup>
-	-	-	-	110 <sup>(5)</sup>
1200 <sup>(5)</sup>	1200 <sup>(5)</sup>	1200 <sup>(5)</sup>	1200 <sup>(5)</sup>	1200 <sup>(5)</sup>
-	-	-	1300 <sup>(5)</sup>	-

## Standards

Standards	
IEC60146-1-1:2009	Semiconductor converters - Specification of basic requirements
IEC62040-1:2008 +AMD1:2013	Uninterruptible power systems (UPS) - Part 1-2: General and safety requirements for UPS in restricted access locations
IEC62040-2:2006	Uninterruptible power systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements
IEC60529:1989 +AMD1:1999	Degrees of protection provided by enclosures (IP Code)
IEC60076-11:2004	Power transformers – Part 11: Dry type transformers

Conformity	
Low voltage directive	2006/95/EC and 2014/35/EU
EMC directive	2004/108/EC and 2014/30/EU
CE Mark	

(1) Other value on request

(2) Option for THDI ≈ 5% available on 12-pulse version

(3) May vary depending on DC output voltage and system configuration

(4) 6-pulse version only

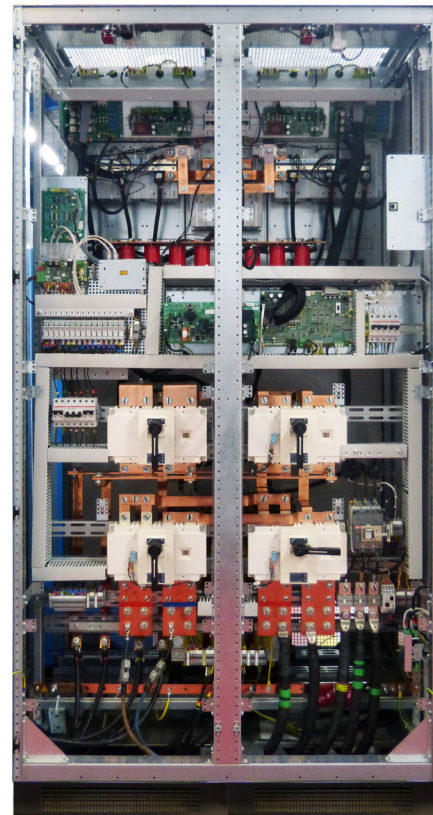
(5) 12-pulse version only

## Options

Consult us for any other requirements, subject to feasibility

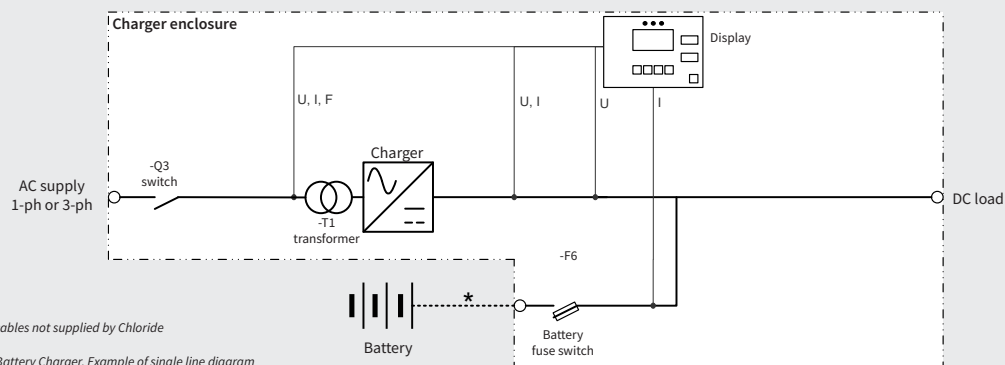
Rectifier	<ul style="list-style-type: none"> <li>12-pulse rectifier</li> <li>Harmonic filter on 12P for THDi <math>\approx 5\%</math> (+/- 1pt)</li> <li>Voltage ripple filter (psophometric for 48 Vdc output only)</li> <li>Blocking diode</li> <li>Other input voltage (from 3 x 190 to 3 x 690 VAC)</li> <li>Surge and/or lightning protections</li> </ul>
Battery	<ul style="list-style-type: none"> <li>Battery circuit protection box</li> <li>Battery reversed polarity detection</li> <li>Battery low-voltage disconnection contactor (LVD)</li> <li>DC earth fault detection</li> <li>Battery room temperature sensor</li> <li>Battery monitoring system (Chloride® BMS)</li> <li>Battery cabinet / rack</li> </ul>
System	<ul style="list-style-type: none"> <li>Operation in ambient temperature up to 55°C</li> <li>Parallel configurations (dual, trial)</li> <li>Hot stand-by configuration</li> <li>Input/output isolators</li> <li>Dropping diodes / DC/DC serial regulator (in external cabinet)</li> <li>Isolated DC/DC converter (in external cabinet)</li> <li>DC distribution (in external cabinet)</li> <li>Earth fault detection or monitoring</li> <li>Internal cabinet lighting</li> <li>Anti-condensation heater</li> <li>Cabinet temperature monitor</li> </ul>
Mechanical	<ul style="list-style-type: none"> <li>External ingress protection up to IP42</li> <li>Top cable entry (via external cabinet)</li> <li>Specified color of panels</li> <li>Special feet height (200mm or 300mm)</li> <li>Special keylock</li> <li>Non-magnetic gland plate (brass or aluminum)</li> <li>Lifting eyes</li> <li>2 mm side panels thickness</li> <li>Specified cabinet identification (tag, nameplate)</li> <li>Anti-seismic design</li> </ul>
Communication	<ul style="list-style-type: none"> <li>Front panel analogue meters (72x72, class 1.5 or class 1)</li> <li>Transducers 4-20mA</li> <li>Additional volt-free contacts</li> <li>Modbus RTU (RS232 or RS485)</li> <li>Modbus / TCP</li> <li>Profibus</li> <li>IEC61850 protocol</li> <li>PPVis monitoring software</li> <li>Mimic panel: <ul style="list-style-type: none"> <li>- Passive mimic of the system</li> <li>- Active mimic with integrated LEDs</li> </ul> </li> <li>Lamp indicator on front panel (22 mm diameter)</li> </ul>

## Internal layout examples



Example of Chloride® CP70RC-48V-500A-12P

The above illustrations show some examples of finished systems. As each system is customized to specification, the internal layout might be different for different units.



## LYNX by Chloride® (HMI)

The front panel of the system includes a large, colour touchscreen LYNX with intuitive graphical interface that simplifies system setup, operation, and troubleshooting



LYNX by Chloride® - Human-machine Interface (HMI)

### System Set-up

- Selection of the language
- Set-up of the date and time
- Adjustment of the brightness
- Configuration of the main screen: the user can choose between displaying the block diagram only or the block diagram with the input and/or output measurements
- Configuration of the Modbus (optional)
- Adjustment of system parameters in a password protected area (e.g. battery voltage level, number of cells)

### System Operation

- View of the single line diagram with color-coded blocks and power flow
- Check the position of the system main isolators (open/close status)
- Access to blocks information and measurements via a simple touch
- Change of the battery charging mode (float, boost, initial charge)
- Launch of a battery test

### System troubleshooting

- Color-coding of each block for immediate identification of possible alarm
- Memorization of some critical fault messages with a mandatory fault acknowledgement
- Checking of all the triggered status, warning and fault messages with detailed description via a simple touch
- Event logger that records up to 2000 events with date and time stamp
- Export of all the recorded events using USB flash drive. The extracted HTML file allows root cause analysis.



**With complete service portfolio and extensive field service network, we ensure system lifelong reliability.**

- Project services and commissioning
- Maintenance services and plans
- Performance improvement and upgrades

**At Chloride we design, manufacture and service custom-made Uninterruptible Power Systems to protect your mission-critical industrial applications.**