



**CONNECT AND PROTECT**

# Varistar CP Electronics Cabinets

  
nvent

**SCHROFF**

# We Connect and Protect Your Electronic Devices

## About nVent

nVent is a leading global provider of electronic and electrical system control solutions, with manufacturing and sales centers in 13 countries worldwide, with businesses in Europe, Americas, Asia Pacific, and other regions. Many well-known brands have gathered in nVent based on the common mission to form three core industry platforms: electronic and electrical cabinet system platform, industrial and civil electric heating system platform, and electrical quickening system platform. Each industry platform has its own well-known brands in the electrical industry, mainly including HOFFMAN, SCHROFF, RAYCHEM, TRACER, CADDY, ERICO, and others.

nVent's Asia Pacific Headquarters and R&D center located in Qingdao, Shandong, focuses on providing localized solutions and timely services. nVent provides excellent products and solutions for the Asia Pacific market in applications such as intelligent transportation, information industry, advanced physics, medical imaging, data centers, and infrastructure.

## About SCHROFF

SCHROFF brand was founded in Germany in 1962 and is a leader in European electronic system protection solutions. It is committed to the development and promotion of 19" standard products, providing the most complete standard 19" chassis, cabinets, subracks, and electronic system solutions, challenging various designs with strong custom R&D capabilities.

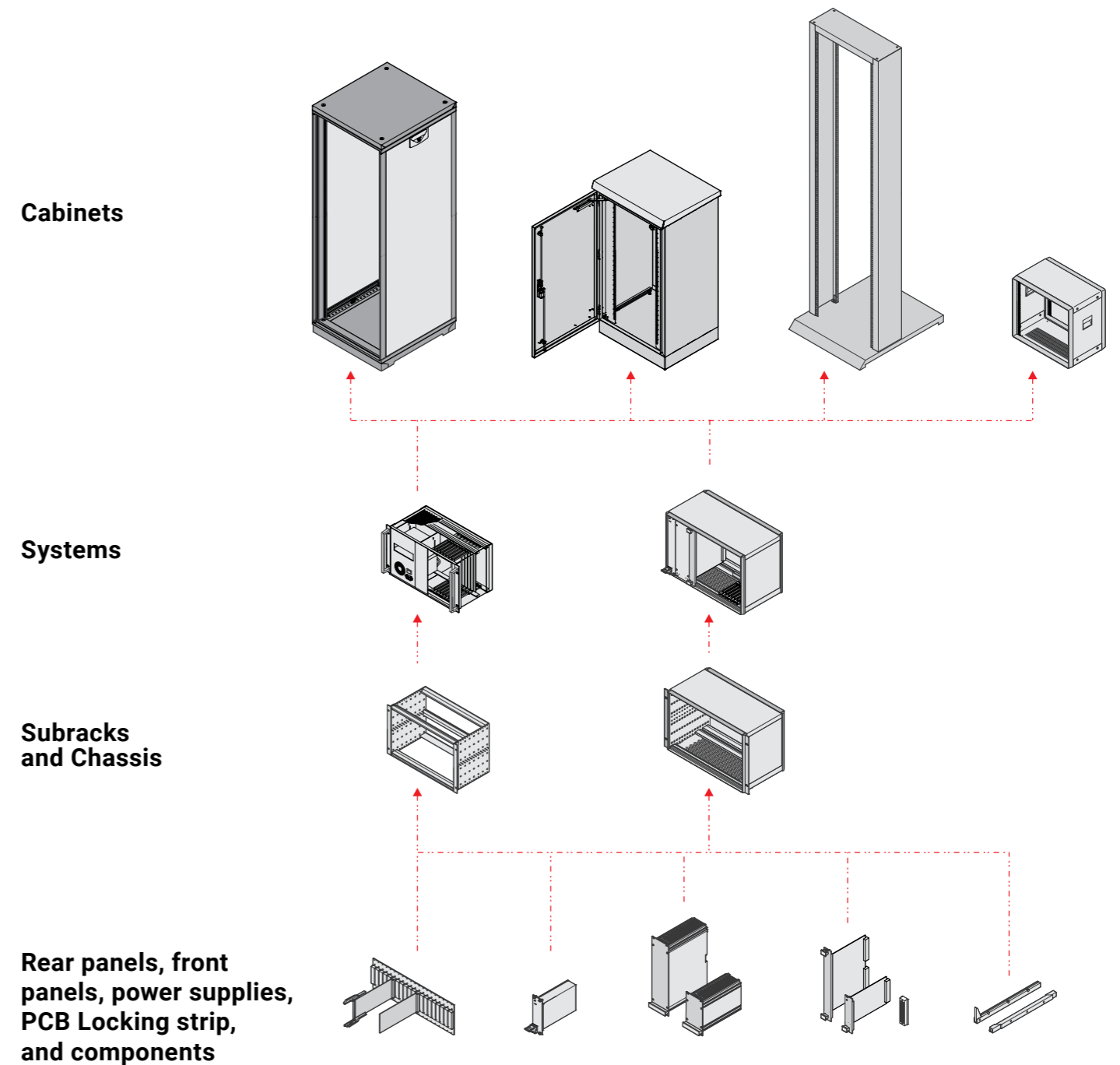
## Service industries

1. Railway Transportation
2. Test and Measurement
3. Data Center and Network Security
4. Communication
5. Aerospace and Defense



# Wide Applications

## WIDE APPLICATIONS

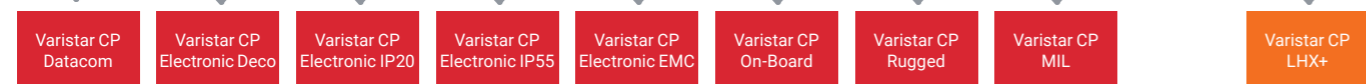
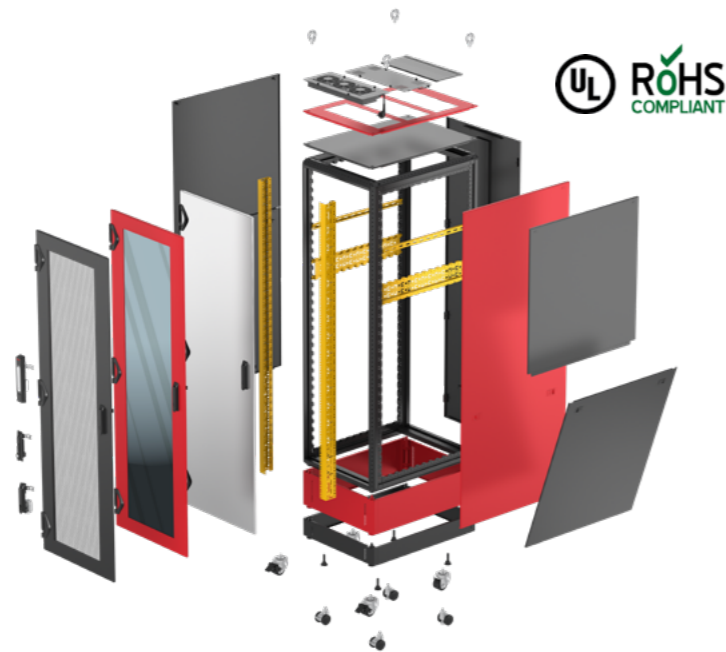


## WE WILL PROTECT YOUR ELECTRONIC DEVICES: 19" AND OTHER SIZES

As one of the leading innovators in 19" technology industry, nVent is expanding its field to other small-scale solutions that break through traditional 19" size. The Interscale series, a SCHROFF brand under nVent, adopts innovative chassis design and components, reducing time for integration, and customization is possible to meet personalized requirements. This is our flexible solution for small and non-standard PCBs to meet your needs accurately at any time.

# One Versatile Platform FOR VARIOUS MARKETS

## PERFORMANCE & DEPENDABILITY FOR CRITICAL SYSTEM



# Modular IN VARIOUS EXTREME ENVIRONMENTS

nVent SCHROFF Varistar CP cabinets adopt an integral welded frame structure and modular design, achieving higher flexibility on a single platform. Sturdy profiles are adopted to guarantee wide applicability. The frame meets the shock and vibration requirements of Grade DL6 according to IEC 6158 steel7-1 and supports a static load of up to 1600kg (3500 pounds).

The cabinets can accommodate various key equipment according to the environment for various applications, such as power supply, control system, high-voltage system, data acquisition system and monitoring system, meeting various protection and cooling requirements of these equipment, including EMC shielding and dust prevention, moisture-proof and waterproof, efficient and precise cooling, etc.

### ROBUST DESIGN

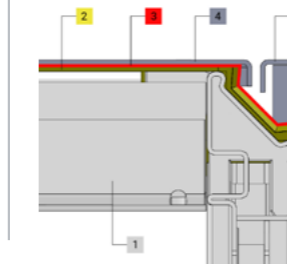
The robust frame with integral welding is designed specifically for areas requiring high dynamic load and susceptibility to earthquakes. Protection for Bellcore Zone 4 earthquakes has been verified via dynamic test, providing reliable protection anywhere in the world.



### HF SHIELDING

nVent SCHROFF Varistar CP has efficient shielding performance, protecting sensitive electronic devices from interference radiation, and is tested according to IEC 61587-3.

1. Frame
2. Conductive EMC textile gasket
3. Conductive layer
4. Rear panel
5. Side panel



### IP PROTECTION

Varistar CP demonstrates excellent performance in harsh industrial environments, with high mechanical strength, IP55 dust and waterproof sealing, and compliant grounding, ensuring safe operation of machines and systems.



### RICH COMPONENTS

According to various wiring requirements of equipment inside the cabinet, we have proposed the cable management concept of zoning wiring for Varistar CP cabinets and developed a series of components to ensure simple and smooth wiring inside the cabinet.



## PERFORMANCE TEST

Features	Standards	Test Results
Static/Dynamic Loads	Certification by management agency UL 2416 UL Standard for Safety Audio/Video, Information and Communication Technology Equipment Cabinet, Enclosure and Rack Systems (First Edition)	1600kg (3500 pounds) static load 1000kg (2200 pounds) dynamic load, with integrated castors
Shock and Vibration Tests for on-board equipment in rail transit	EN 61373:04.2011 Railway Applications - Rolling Stock Equipment - Shock and Vibration Test EN50155, 4.1.3/12.2.11 Railway Applications - Rolling Stock - Electronic Equipment	Class 1, Grade B
Earthquake Test	GR-63-CORE issue 5	Zone 4, carrying 250Kg Zone 4, carrying 500Kg
EMC Test	Mechanical structures for electronic equipment - Tests for IEC 60917 and IEC 60297 - Part 3: Electromagnetic shielding performance tests for cabinets and subracks Electromagnetic compatibility (EMC) - Part 5-7: Installation and mitigation guidelines; Degrees of protection provided by enclosures against electromagnetic disturbances (em code) (IEC 61000-5-7)	Shielding energy efficiency 60dB@1 GHz , 40dB@3GHz Shielding energy efficiency 30dB@18GHz
Fire Safety Gasket Test	EN45545 Railway Applications - Fire Protection of Railway Vehicles - Part 2: Requirement for fire behavior of materials and components	R22/R23
IP Protection Grade	IEC/DIN EN60529 VDE 0470 Degrees of protection provided by enclosure (IP code)	IP20 , IP55
Installation Options	Mechanical structures for electronic equipment - Dimensions of mechanical structures of 482.6mm (19") series - Part 3-100: ETS 300-119-3 Equipment Engineering (EE); European telecommunication standard for equipment practice; Part 3: Engineering requirements for miscellaneous racks and cabinets	19" or ETS

# Exquisite and Practical Design

## REDEFINING FUNCTION AND AESTHETIC DESIGN OF 19" ELECTRONIC CABINETS

nVent SCHROFF Varistar CP cabinet with stylish appearance



### Industrial aesthetic design

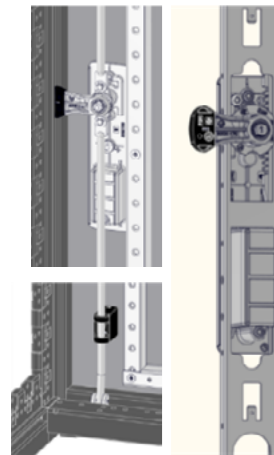
High front/rear doors and side panels  
Various cabinet colors  
Custom logo

### Quick Installation

TORX 30 screw heads for all screws  
Crack-resistant, high durability  
Fewer tools

### Rich Configuration

Integrated side panels - screw fixing  
Integrated side panels - quick-release faster  
Divided side panels - quick-release faster  
Various applications



### Locking System

IP20 cabinet: Single/3-point locking system  
IP55 cabinet: 3-point linkage locking system  
EMC, seismic cabinet: 4-point gear linkage locking system  
Gear linkage locking system, efficient and reliable  
Relative rotation of upper/lower locking tongues, balanced locking force  
Multi-point locking structure, efficient shielding performance

### External Hinge

Industrial aesthetic design  
Tool-free installation of cabinet doors  
180° opening of doors for parallel cabinets  
Number of hinges based on functions, high stability



### Doors Perforated

EMC: Continuous potential conduction, high shielding efficiency  
IP20: 80% ventilation efficiency

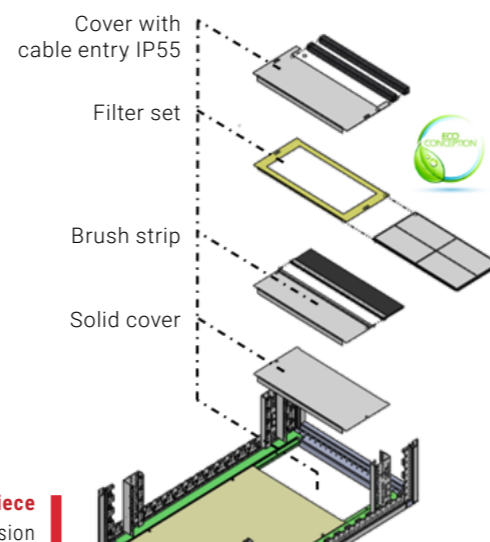


### Adjustable Display Bracket

With/without a keyboard bracket  
Flexible expansion

### Modular Base Plate Multi-piece

Easy access and expansion

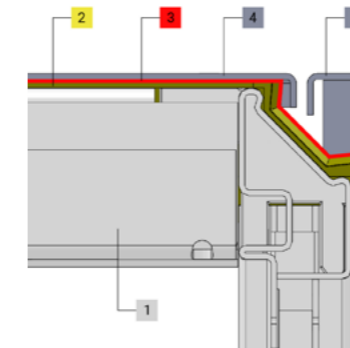


# Excellent Protection

## INNOVATIVE ELECTROMAGNETIC SHIELDING AND SEALING DESIGN

Efficient shielding performance: prevent electronic devices from external electromagnetic interference during operation

1. Frame
2. Conductive EMC textile gasket
3. Conductive layer
4. Rear panel
5. Side panel

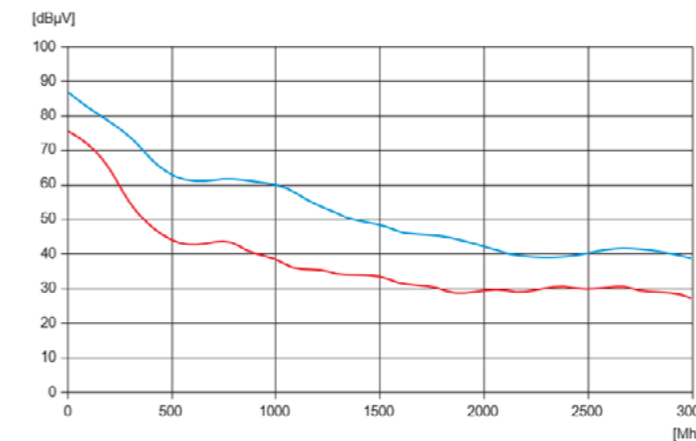


Varistar CP adopts innovative electromagnetic shielding and sealing design. The EMC high-performance shielding sealing strip is directly attached to the frame and connected to the adjacent one using a three-way metal corner block, to achieve continuous potential conduction between the built components, minimizing electromagnetic leak. Sealing, shielding during side-by-side mounting of cabinets, and fire retardancy are considered during the shielding design.

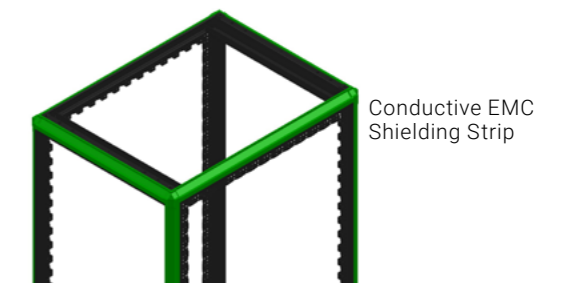
Advantages:

- Efficient electromagnetic shielding, fully enclosed cabinet, meeting shielding performance test at 40dB@3GHz and 30dB@10GHz, compliant with IEC 61587-3.
- Successful electromagnetic shielding performance test at 18GHz following EN 61000-5-7, with shielding efficiency of 30dB@18GHz.
- No expensive frame processing cost.
- EN45545 truck-borne fire-retardant certification.
- EMC high-performance shielding sealing strip, IP55 waterproof and dustproof.
- IP55 sealing strips with identical safety and size when shielding performance is not required.

IEC 61587-3 Electromagnetic shielding performance test

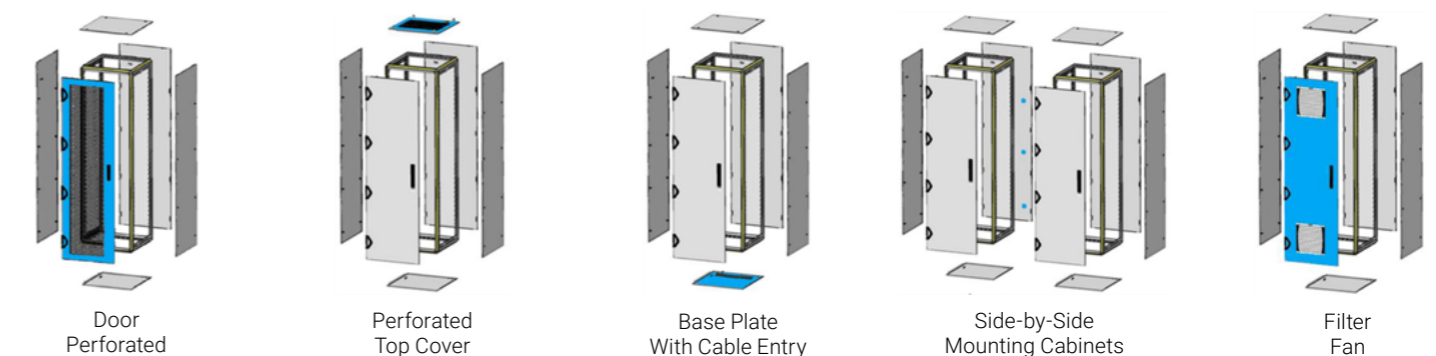


1. Cabinets with solid door
2. Cabinets with perforated door



## MODULAR CONFIGURATION ELECTROMAGNETIC SHIELDING SOLUTION

SCHROFF tested the EMC electromagnetic shielding performance of Varistar CP cabinets with configurations for various applications, providing standard components for easy production of standard cabinets for various needs, reducing project evaluation cycles and shortening delivery cycles.



View test report of Varistar CP cabinet:

<https://SCHROFF.nVent.com/zh-cn/resources/resource-library>

# Robust and Safe Protection

SUITABLE FOR VARIOUS APPLICATIONS IN EXTREME ENVIRONMENT

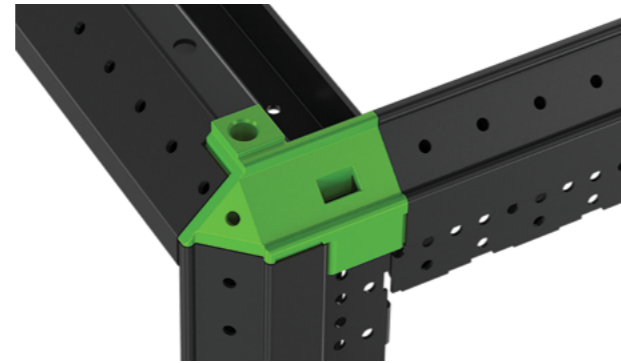
## WELDED FRAME

nVent SCHROFF Varistar CP cabinet adopts an integral welded frame structure, meeting shock and vibration requirements of DL6 level according to IEC 61587-1, and supporting static load of up to 1600kg (3500 pounds).

The core of the platform is a sturdy enclosed labyrinth-shaped steel profile, with uniformly built-in 25mm spaced mounting holes along height, width, and depth, and various accessories.

The frame integrates high-strength corner blocks, safe and reliable cabinet, convenient installation of lugs, adjustable feet, and casters.

Modular design, the highest flexibility on a single platform.



## HIGH LOAD, SHOCK AND VIBRATION PROTECTION



Standard frame solution

- Installing casters or adjustable feet
- Static load of up to 1600kg (3500 pounds)

## MOBILE PROTECTION



Mobile frame with split casters and/or adjustable feet

- 1000kg test, caster landing
- 1600kg test, adjustable feet loading

## ON-BOARD PROTECTION



Welding process per EN15085 welding system certification

- Per EN50155, 4.1.3/12.2.11 Railway applications - Rolling stock - Electronic Equipment Class 1, Grade B

## EARTHQUAKE PROTECTION

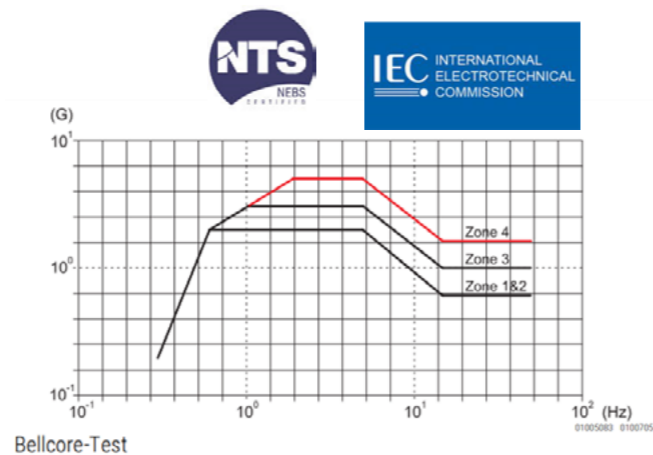
Varistar CP reinforced seismic cabinet is NEBS certified and tested to withstand 250kg and 500kg according to Telcordia GR63 Zone 4 requirements.

We provide two standard components (250kg and 500kg) for seismic protection under various loads.

## FRAME SEISMIC SUPPORT



## DOOR SEISMIC SUPPORT



## SHOCK ABSORPTION PROTECTION

Varistar CP seismic cabinet is equipped with shock absorbers to meet the harsh shock and vibration requirements of ships.

Test basis:

- MIL-STD-901E
- MIL-STD-167

## WIRE ROPE SHOCK ABSORBER



# Modular Cooling Solution

EFFICIENT & HEAT DISSIPATION TO EXACT REQUIREMENTS

We provide multi-cooling options for nVent SCHROFF Varistar CP cabinets to effectively cool the electronic devices inside. Varistar CP cabinets can be equipped with modular cooling solutions such as filter fans, fan trays, air/water heat exchangers, air conditioners, etc. based on various heat generation and environment conditions of electronic equipment inside.

Description	Natural Convection	Raised Top Cover Ventilation	Perforated Door	19" Fan	Air Filter Fan	Air/air Heat Exchanger	Air Conditioner
Diagram							
IP Protection	≤IP55	≤IP20	≤IP20	≤IP20	≤IP55	≤IP55	≤IP55
Noise Level Approx	0	0	55...65 dB(A)	34...67 dB(A)	39...71 dB(A)	55...75 dB(A)	55...81 dB(A)
Ambient Conditions	$T_i > T_u$	$T_i > T_u$	$T_i > T_u$	$T_i > T_u$	$T_i > T_u$	$T_i > T_u$	$T_u \leq 55^\circ\text{C}$
Cooling Capacity Approx	< 500 W	< 500 W ... 800 W	< 500 W ... 6000 W	≤2 kW	≤1.5 kW	≤2 kW	≤3 kW

## COOLING VIA AIR/WATER HEAT EXCHANGER



For high-precision test and measurement, high-energy physics and other applications that require constant temperature operation, efficient cooling, etc.. Varistar CP cabinets are configured with modular water-cooled heat exchanger, adopting 19" standard cooling module that can be easily integrated, providing precise temperature control up to +/- 0.1°C while meeting heat dissipation requirements.

We can help you determine and develop the required solution based on the generated heat, internal / external temperatures, and chassis configuration.

	LHX 3	LHX+ 3 - 10	LHX+ 30
Diagram			
Cooling Concept	From bottom to top, bottom heat exchanger and top fan	From front to back, bottom heat exchanger and inside controller unit	From front to back, side heat exchanger
IP Protection	≤IP55	≤IP55	≤IP55
Noise Level Approx	50...60 dB(A)	50...60 dB(A)	50...60 dB(A)
Ambient Conditions	$T_u \leq 70^\circ\text{C}$	$T_u \leq 70^\circ\text{C}$	$T_u \leq 70^\circ\text{C}$
Size	5U (Heat exchanger) + 1U (Fan unit)	5U,6U (Heat exchanger)	Side installation, not occupying space of 19" rack
Cooling Capacity	1 - 3 kW	3 - 10 kW	30 kW
Precision Temperature Control	No	Yes	Yes
Installation	Base	In 19" column	Side
Application	Suitable for thermal sensitive equipment, such as spallation neutron source devices, advanced light source laboratories, engine and transmission test benches, etc.		Suitable for applications with high heat loads device, such as data center, etc.

# Rich Accessories

## SECURITY ACCESS SOLUTION

Multi locking options and a variety of ergonomic handles for Varistar CP cabinets

- Lever handle with 1333 round cylinder
- Lever handle with 1333 round cylinder and digital locking system, dual protection
- Lever handle with DIN profile half cylinder, 2233 key
- Electronic lock, MLR 1000, 3000 and 5000
- Compatible with Kaba lock cylinder, etc.



For more information:

<https://SCHROFF.nVent.com/zh-cn/products/handles-and-locks>

## EFFICIENT CABLE MANAGEMENT

Varistar CP cabinets come with an effective and wide array of cabling options.

19" cable duct. Panel	Horizontal 1U/2U cable channel	19" panel for cable eyes	Single/Double steel cable eyes	Rubber pad for double steel cable eye 80mmD/115mmD	Cable eye plastic 55mmD/100mmD	LWL cable eye DNS Panel Mount/Electronic Panel Mount	Cable ties/velcro strip/Cable Shell
Plastic/Steel Cable Eye	C-rail	Cable retention rail for C-rail	Sliding nut for C-rail	C-rail for the width	Cable panel 250mm	Tray for excess cable lengths	

For more information:

<https://SCHROFF.nVent.com/zh-cn/products/cable-managers>

## INNOVATIVE CASTOR DESIGN

Varistar CP cabinets, multi feasible solutions, suitable for various cabinet-carrying needs

- High load castors, passing 900kg dynamic load test with integrated castors
- Integrated castors with adjustable feet, carrying 400kg, high applicability
- 125mm large rubber castors, good trafficability
- Light castors that do not protrude from the cabinet frame, beautiful
- Enables moving the completely mounted enclosure for maintenance without forklifts
- Rubber rubber castors protect your floors from scratches and maintenance

High load castors, 900kg	125mm large rubber castors	Integrated castors with adjustable feet, carrying 400kg

For more information:

<https://SCHROFF.nVent.com/zh-cn/products/shelves-and-slide-rails>

# Value Added Services

## STANDARD MODULAR: SIMPLE, QUICK, CONVENIENT

nVent SCHROFF Varistar CP is a universal electronic cabinet platform. As multifunction solutions, Varistar CP adopts modules to provide various sizes of cabinets for standard configurations of various applications such as IP, EMC and seismic resistance. Rich components are supplied for high flexibility on a single platform, easy to produce standard cabinets for various needs with standard components, short delivery time.

## 3D ONLINE CONFIGURATION TOOLS: QUICKLY PRODUCE CABINETS

With nVent SCHROFF's 3D online configuration tool, customers can produce a Varistar CP electronic cabinet in just a few minutes. The 3D online configuration tool is a free web-based interactive interface.

Design your cabinet in graphical interface

No need to register and download software

Real time visualization of 3D interface:

- Drag and drop
- Predefined parts and parameters
- Components are automatically assembled at proper positions

Zero errors via automatic compatibility check

Instant download of parts lists and 2D/3D drawing patterns

Easily forward files to colleagues/partners

Simple internal decision-making process

Save the configuration, including unique part No.

Generate 3D PDF, 2D/3D drawings, quick inquiry and order placement

Change/copy configuration and create new items



### Design, configuration, delivery

- Design meets certification requirements
- Easy configuration for various applications and product design styles
- Localized production, global service, sales support



Stable, Reliable.  
Quick.  
Global Support.

<https://SCHROFF.nVent.com/zh-cn/configurators/3d/varistar-cp/new>



## **NORTH AMERICA**

### **All locations**

Tel: +1.763.422.2661

## **EUROPE**

### **Straubenhardt, Germany**

Tel +49.7082.794.0

### **Betschdorf, France**

Tel +33.388.90.64.90

### **Warsaw, Poland**

Tel +48.22.209.98.35

### **Assago, Italy**

Tel +39.02.5776151.224

## **MIDDLE EAST & INDIA**

### **Dubai, United Arab Emirates**

Tel +971.4.37.81.700

### **Bangalore, India**

Tel: +91.80.6715.2001

### **Istanbul, Turkey**

Tel: +90.216.250.7374

## **ASIA**

### **Shanghai, P.R. China**

Tel +86.21.2412.6943

### **Qingdao, P.R. China**

Tel +86.523.8771.6280

### **Singapore**

Tel +65.6768.5800

### **Shin-Yokohama, Japan**

Tel +81.45.476.0271

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