



CONNECT AND PROTECT

Enclosure Cooling Solutions


nvent

HOFFMAN

nVent HOFFMAN Cooling



nVent HOFFMAN Cooling helps create optimal conditions for the reliable operation of electronic and electrical components in a variety of industrial, data comm and commercial applications. With a broad portfolio including: filter fans, air conditioners, heat exchangers, and integrated cooling enclosures, nVent HOFFMAN assures maximum productivity and uptime while protecting the life cycles of controls and equipment.

As a premier global provider with decades of experience in cooling industrial automation and electrical components, nVent HOFFMAN has an industry-leading portfolio of proven products, pre- and post-sale support, and comprehensive engineering and testing services.

REASONS TO CHOOSE HOFFMAN FOR YOUR COOLING SOLUTION

- Over 2,000 UL®-certified standard cooling, heating, and climate-control products for reliable operation and longer life of protected components
- Cooling specification is easier with our [Cooling Selection Tool](#) that will help you find the ideal cooling solution from 1,000+ standard cooling configurations
- Cooling products are stocked locally and supported by a vast distribution network for quick availability and service
- On-site thermal audits and consulting
- Available modifications including sizing, adaptation, power, custom paint, and accessories
- State-of-the-art, in-house laboratory testing, validation, and global agency certification services

THE ADVANTAGES OF COMBINING NVENT HOFFMAN ENCLOSURE AND COOLING SOLUTIONS

- Ensures complete solution is engineered to maintain rating and certification
- Single-source accountability for support and service
- Ease of specification, ordering, and purchasing
- Reduced lead times and elimination of miscommunication between multiple vendors

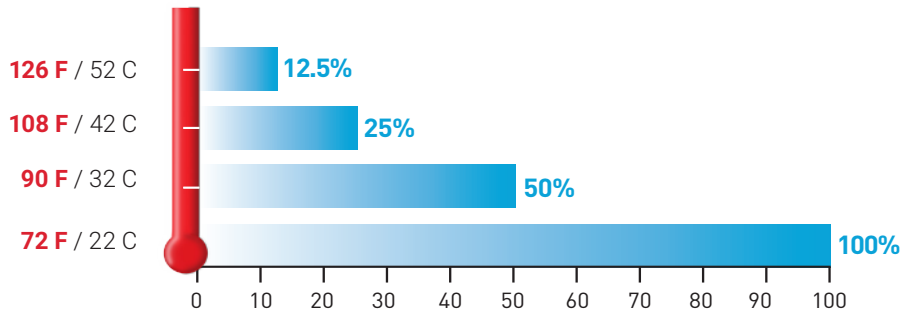


For more information: nVent.com/HOFFMAN

Why Use Cooling?

HEAT DAMAGES AND REDUCES THE LIFE OF YOUR ELECTRONICS

Electronics Life Expectancy is Reduced by Half with Every 18 F Rise Above Room Temperature



ELECTRONICS LIFE EXPECTANCY = %
Source: Digital Equipment Corporation

Keeping your electronics cool is essential to maximizing the life cycles of your electronic devices, reducing capital expenses, and keeping your business running. Heat can have a significant impact on electronics, reducing performance, causing damage, and affecting manufacturer warranties.

SOURCES OF DAMAGING HEAT

Heat can be generated internally by electronic components and intensified by external sources. Inside a cabinet, uncooled components can generate as much trapped heat as a home furnace

- AC power supplies
- Controllers, drives and servos
- Transformers and rectifiers
- Processors and server racks
- Radio equipment

Heat is also generated from sources outside the enclosure such as

- Solar heat gain
- High ambient temperature
- Welding processes
- Paint oven
- Blast furnace
- Foundry equipment

TRENDS TOWARD MORE HEAT

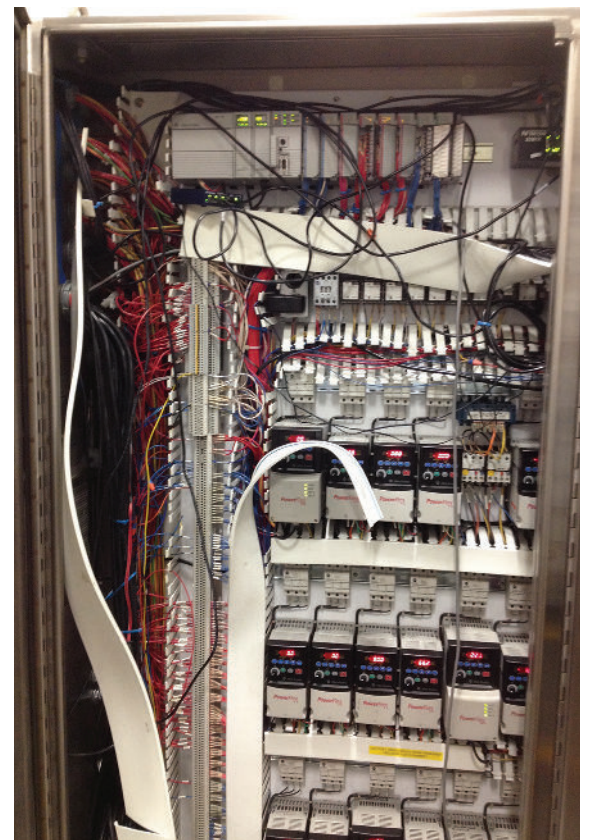
With expanding deployment of smaller, more powerful, and more portable mission-critical electronics into increasingly harsh environments and conditions, cooling and thermal

management is now a primary engineering consideration. The density of modern electronics in smaller cabinets intensifies heat issues that can compromise component performance.

CONSEQUENCES OF HEAT

Heat build-up can adversely affect industrial controls creating the potential for

- De-rated drive performance
- Intermittent fluctuations in I/C-based devices
- MTBF decreases exponentially
- Catastrophic component failure
- Warranty revocation
- Component replacement costs
- Late shipments
- Customer dissatisfaction
- Lost revenue
- Service outages
- Hours of factory downtime



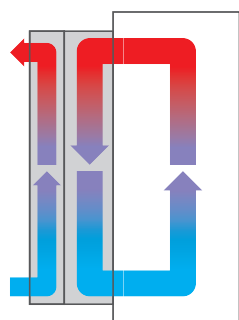
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Cooling Strategies

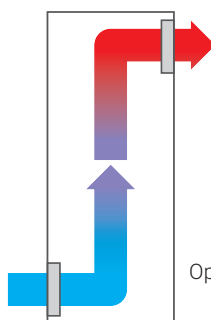
CHOOSING A SOLUTION TO MAXIMIZE THE OPERATIONAL LIFE OF YOUR ELECTRONICS

HOFFMAN COOLING SYSTEMS CHARACTERISTICS

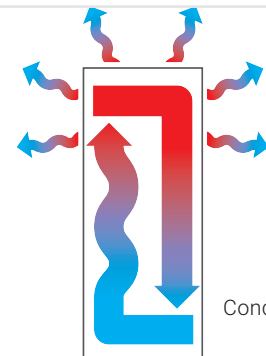
COOLING SYSTEM TYPE	TECHNOLOGY DESCRIPTION	HEAT REMOVAL RANGE	ENVIRONMENT TYPE	TYPICAL APPLICATIONS	Cools Below Ambient	Cools Above Ambient	Closed Loop
Air Conditioners	Forced air Refrigerant-based	High	Hot Environments (typically over 35 C/95 F) High Heat Load (300W-17,300W) Dirty or Corrosive Air Harsh/Humid Environments Hazardous Locations	Indoor or Outdoor Industrial enclosures Telecommunications Wastewater treatment Metal working Foundry Oil & Gas Operations	✓		✓
Thermoelectric Coolers	Peltier effect No moving parts or liquids	Low	Small Enclosures Low Heat Load (60-200W) Remote/ DC-powered applications	Indoor or Outdoor Telecommunications Battery cabinets Industrial enclosures Security systems	✓		✓
Air-to-Air Heat Exchangers	Closed loop No liquids	Moderate	Cool Air Environment Moderate Heat Load (7-150W/F) Dirty or Corrosive Air Hazardous Locations	Indoor or Outdoor Telecommunications Light-duty manufacturing Oil & Gas Operations		✓	✓
Air-to-Water Heat Exchangers	Close-coupled water cooling No moving parts exposed to environment	Highest	Very Hot Environments High Heat Load (870W to 6700W) Extremely Dirty/Dusty Air Hazardous Locations	Extreme conditions where air conditioners would be subject to failure Automotive manufacturing Machine tool Packaging Paper mill Oil & Gas Operations	✓		✓
Filter Fans	Forced, fresh air Open loop	Low to Moderate	Cool, Clean Air Environment	Industrial manufacturing Outdoor telecom Data networking		✓	
Vortex Coolers	Requires compressed air source Forced air No liquids or moving parts	Moderate	Hot Environments (typically over 35 C/95 F) Heat Load (up to 1,465W) Dirty or Corrosive Air Harsh/Humid Environments Hazardous Locations	Heavy manufacturing Metal working Oil rig/refinery Paper mill Foundry Oil & Gas Operations	✓		✓
Conductive (no cooling unit)	Passive Heat radiates through enclosure walls	Very Low	Cool Air Environment (<78 F/25 C) Low Heat Load (<50W)	Where enclosed components operate within recommended temperature range		✓	Per enclosure rating



Closed-Loop



Open-Loop



Conductive

For more information: nVent.com/HOFFMAN

HOFFMAN Cooling

A WIDE RANGE OF THERMAL MANAGEMENT SOLUTIONS FOR CRITICAL APPLICATIONS



AIR CONDITIONERS FOR RUGGED ENVIRONMENTS

Delivering reliable enclosure cooling in the most extreme indoor and outdoor environments, **nVent HOFFMAN** air conditioners are available in multiple configurations that offer a broad range of cooling capacities, power input, and mounting options.

FEATURES

- Models with 1,000 to 20,000 BTUs/Hr cooling power for indoor, outdoor, and harsh environments
- Dust-resistant coil design supports filterless operation in most environments
- Built-in flanges for easy installation
- **nVent HOFFMAN Easy Swap Adapter Plenums** provide a quick and easy way to upgrade to a new air conditioner unit using the existing enclosure cut-out while maintaining enclosure rating
- **nVent HOFFMAN Remote Access Control** is a unit upgrade for monitoring and managing an entire network of HOFFMAN air conditioners

HAZARDOUS LOCATION COOLING

HOFFMAN Cooling products offer air conditioners with an attractive design, heaters, and Vortex coolers.

HAZLOC A/C FEATURES

- Class 1 Div 2 Groups B, C, D T4
- Models with 4,000 to 11,000 BTUs/Hr cooling power for
- Narrow construction to fit any 12 in. deep enclosure
- Type 4, 4X and Offshore models available

HAZLOC HEATER FEATURES

- Class 1 Div 1 Groups A, B, C, D T4
- ATEX IECEx II2G Ex d IIC T3 / II2 D Ex Td A21 IP65 T200 C
- Conductive and Convection heating types available

HAZLOC VORTEX COOLER FEATURES

- Class 1 Div 2 Groups A, B, C, D and Class 2 Div 2 Groups F & G
- Approved for 175 F (80 C) maximum ambient temperature
- Cooling capacities up to 5000 BTU/Hr. (1465 W)

SIDE-MOUNT FILTER FANS

nVent HOFFMAN Filter Fans are available in a wide selection of Type 1 and Type 12 configurations offering a compact, click-fit design. They can also be converted Type 3R or Type 4/4X with our easy to use Filter Fan Shrouds.

FEATURES

- Airflows ranging from 21 CFM (36 M3/Hr) to 484 CFM (822 M3/Hr)
- Sizes from 4 in. to 13 in.
- Similar cut-out sizes to match other filter fan manufacturers

THERMOELECTRIC COOLERS

nVent HOFFMAN Thermoelectric Coolers provide refrigerant-free, filterless design without a compressor and virtually eliminates maintenance.

FEATURES

- Cooling capacities from 60 to 200 Watts (nominal); (204 to 682 BTUs/Hr)
- DC powered operation for 24 V and 48 V applications
- Optional temperature controller and condensate manager

Local Service

COVERAGE YOU CAN COUNT ON



6,700

AUTHORIZED
TECHNICIANS
WORLDWIDE

**FACTORY-
AUTHORIZED
SERVICE AVAILABLE
AROUND THE GLOBE**

With HOFFMAN, you're assured of the most complete maintenance and service offerings. That means reduced downtime, higher levels of overall system performance, and maximum operational life for your protected equipment. Our product quality and complete aftermarket care keeps your equipment running.

HOFFMAN offers pre- and post-sales services and support to let you choose the right cooling product for the job, and tailor the level of assurance you need to mitigate risks.

Our plans and offerings include

- A choice of flexible service plans that can be customized to your needs
- Extended product warranties
- Operator and maintenance training programs
- Custom installation, commissioning, and upgrades

AN UNRIVALED STRATEGIC PARTNERSHIP FOR THE MOST RESPONSIVE LOCAL SERVICE



Through partnership with Johnson-Northwest, HOFFMAN offers unsurpassed service presence and response in North America with expertise that reaches worldwide. JNW delivers full-service capabilities and complete in- and out-of-warranty service for HOFFMAN cooling products from over 570 local service locations in North America.

Through JNW, HOFFMAN offers

- 24/7/365 service availability
- Online service requests
- Factory-authorized expertise to service all HOFFMAN and McLean® models and many competitor models
- Local service in hundreds of North American cities and around the globe
- In-stock availability for selected cooling parts
- Global coordination of service and maintenance programs
- Expedited service and parts availability
- Extensive reporting capabilities including up-to-date status monitoring
- Automatic emails about change-to-repair-order status

Peace-of-Mind

INCLUDED WITH EVERY HOFFMAN PRODUCT

LOCAL AVAILABILITY MEANS PARTS IN HOURS, NOT WEEKS

In each global region, our local distributors have access to large inventories of service parts. Repair technicians worldwide can place parts orders regionally, eliminating communication barriers and ordering delays. HOFFMAN parts are usually available in-stock or shipped within hours, versus shipping delays that can last weeks.

AFTERMARKET SUPPORT – REGIONAL LOCATIONS

NORTH AMERICA

2100 HOFFMAN Way
Minneapolis, Minnesota 55303-1745
Tel: +1-763-421-2240

EUROPE

Langenalber Straße 96-100
75334 Straubenhardt, Germany
Tel: +49 (0) 7082 794-0

CHINA

21st Floor of Cloud Nine Plaza
No. 1118 West Yan'an Road
Changning District, Shanghai
Tel: +86 400 820 1133

SINGAPORE

18 Boon Lay Way
TradeHub 21, #04-110/111
Singapore 609966
Tel: +65.6768.5800

TECHNICAL SUPPORT

cooling.support@nvent.com
1-866-545-5252

- Technical assistance
- Service and warranty support
- On-line resources
- Specifications and drawings

OVER
1,000
COOLING
SPARE PARTS
WHEN YOU
NEED THEM

Custom Engineering

DEVELOPMENT, TESTING & CERTIFICATION CAPABILITIES



OUR DEVELOPMENT PROCESS ENSURES TIMELY DELIVERY

All custom cooling projects are assigned a lead thermal engineer and supported by a dedicated cross-functional team. Using proprietary software to develop cooling system prototypes, cooling performance is calculated and simulated utilizing different technologies, configurations, and sizes prior to build. Prototypes can be developed in as little as two weeks.

TESTING AND CERTIFICATION

A battery of advanced testing is available with mechanical and environmental stresses measured beyond industry standards, including temperature extremes, airflow, UV, dust, corrosion and salt spray, seismic and vibration, EMI/RFI, and water ingress. Each system can be engineered to meet UL, cUL, CSA, Telcordia, NEMA, IEC, European Safety, and FCC compliances and standards.

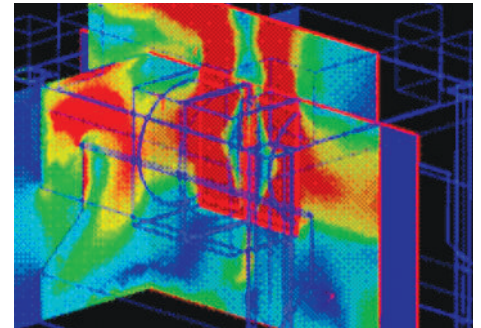
ENGINEERED SOLUTIONS TO MEET YOUR COOLING CHALLENGES

HOFFMAN can custom-engineer cooling solutions for many enclosed controls, electronic devices or electrical systems

- Design and build capabilities to perform in extreme environments
- Rapid prototyping
- UL/CSD certified testing facility and capabilities to meet global certification standards
- 60+ years of custom engineering experience

Custom cooling projects are engineered to meet performance demands for thermal loads, size and configuration considerations, and environmental requirements. Solutions include

- Closed- or open-loop cooling
- Indoor and outdoor environments
- Remote monitoring and control capabilities
- Direct air cooling systems
- General, targeted or remote cooling
- Low- to no-maintenance solutions
- Custom packaged blowers and fan assemblies
- High-efficiency AC and DC power solutions and battery backup options
- Corrosion-resistant designs, materials and finishes including stainless steel, non-metallic materials, coatings, and paints
- Proven, environmentally friendly components
- Thermal and environmental management solutions including heating, condensation management, pressure compensation, temperature monitoring, and control



State-of-the-art engineering, prototyping and testing combined with uncompromising manufacturing delivers optimal performance



Superior cooling solutions driven by highly experienced engineering and design teams

North America

Minneapolis, MN Tel: +1.763.421.2240
Mexico City, Mexico. Tel: +52.55.5280.1449
Toronto, Canada Tel: +1.416.289.2770

South America

Cajamar, SP, Brazil Tel: +55.11.96438.6262

Europe

Betschdorf, France Tel: +33.3.88.90.64.90
Straubenhardt, Germany Tel: +49.7082.794.0
Dzierzoniow, Poland Tel: +48.74.64.63.900
Assago, Italy Tel: +39.02.5776151.224

Middle East & India

Dubai, United Arab Emirates Tel: +971.4.378.1700
Bangalore, India Tel: +91.80.6715.2001

Asia

Shanghai, P.R. China Tel: +86.21.2412.6943
Singapore Tel: +65.6768.5800
Shin-Yokohama, Japan Tel: +81.45.476.0271
Seoul, Korea Tel: +82.2.2129.7755
Qingdao Tel: +86.532.8771.6101

Our powerful portfolio of brands:

CADDY ERICO HOFFMAN RAYCHEM SCHROFF TRACER



[nVent.com/HOFFMAN](https://www.nVent.com/HOFFMAN)