

CONNECT AND PROTECT

Semiconductor Industry Applications


nvent

ERIFLEX

Made for your
complex, high-power*
installations,



nVent ERIFLEX solutions

improve reliability, enhance safety and
ensure compliance to standards, while saving
assembly time, money, weight and space.

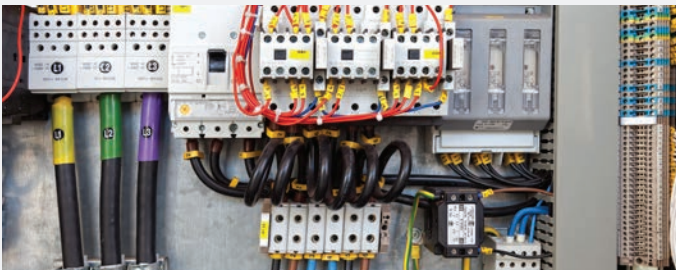
nVent ERIFLEX solutions have already been
adopted by manufacturers of etch, deposition,
lithography, wafer cleaning or test equipment,
among others.

* From 80 Amps to 6000 Amps IEC/UL for voltages up to 1000VAC/1500VDC IEC/UL

COMMON INDUSTRY CHALLENGES THAT WE ANSWER TO

From design to fabrication, designers and integrators of power
supplies and control panels used in the semiconductor industry
are tasked with overcoming challenges and requirements such as:

- The need for compact manufacturing equipment to reduce costly floorspace use at fab level
- The lack of space to run cables and busbars inside enclosures while respecting creepage and clearance distances
- The scalability of equipment production volumes and shortening lead times to meet the global demand for semiconductor manufacturing equipment
- The need for equipment that is safe and reliable to reduce costly downtimes and is easy to inspect and maintain
- The necessity to meet global and industry specific standards (UL, NFPA, IEC, SEMI)





nVent ERIFLEX Solution Benefits

nVent ERIFLEX answers to these industry challenges by providing solutions that are available globally and that ensure:

Space Savings for a Compact Footprint



Time Savings for High-Volume Manufacturing (HMV)



Safety, Reliability and Reduced Downtimes



Compliance to Standards



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nVent ERIFLEX Lugless and Flat Conductors

nVent proposes two flexible flat conductors solutions for connecting electrical components above 80A inside compact spaces.



NVENT ERIFLEX FLEXIBAR ADVANCED



- From 125A to over 2800A at 1000VAC/1500VDC IEC/UL
- Thin layers of tinned electrolytic copper formed into a stack
- Insulated by a high-resistance, halogen-free, flame retardant and low smoke material with reinforced insulation properties, high flexibility and maximum temperature rating of 115°C (267°F)
- No lugs needed therefore reducing installation time and improving resistance to vibration
- Skin effect allows for weight and material savings compared to wire(s) alternatives leading to higher sustainability
- Tinned copper allows for copper or aluminum conductor connections
- Compliant to IEC and UL standards

NVENT ERIFLEX IBSB ADVANCED

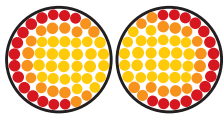


- From 80A to 700A at 1000VAC/1500VDC IEC/UL
- Braid made of tinned copper strands
- Insulated by a high-resistance, halogen-free, flame retardant and low smoke material with reinforced insulation properties, high flexibility and maximum temperature rating of 115°C (267°F)
- Suitable for direct connection to all major brands of molded case circuit breakers.
- Ready to use, no lugs needed therefore reducing installation time and improving resistance to vibration
- Tinned copper allows for copper or aluminum conductor connections
- Ideal for high-volume manufacturing
- Compliant to IEC and UL standards

2 x 150 mm²
Copper Cables
300 mm²

OR
630 A

1 x Flexibar
5 x 32 x 1
160 mm²



47%
Smaller



1 x
Copper Cable
95 mm²

OR
250 A

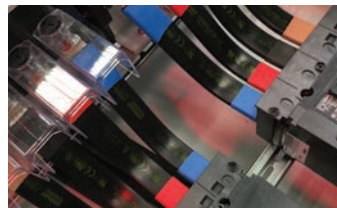
1 x
IBS/IBSB ADV
50 mm²



47%
Smaller



Skin effect: Benefits of flat conductors Scalable prefabricated solution engineered to your requirements



nVent ERIFLEX Power and Distribution Blocks

nVent proposes two solutions for **receiving and distributing power inside** compact enclosures.



NVENT ERIFLEX DISTRIBUTION BLOCKS



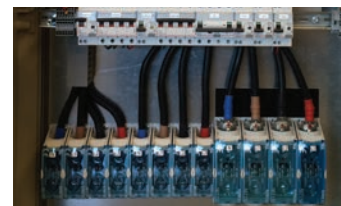
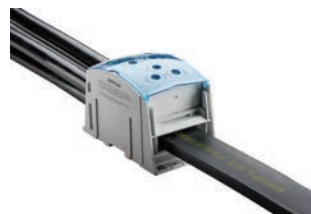
- Range up to 1250A IEC / 950A UL
- Tinned copper or aluminum connecting block allows for the direct connection of copper or aluminum conductors
- No lug needed which makes this solution ideal for high-volume manufacturing
- Compatible with Flexibar and IBSB Advanced
- Compact solution with IP20 rating and halogen-free housing
- Screw retaining cover is hinged and removable as well as transparent for ease of inspection and maintenance
- IEC 60947-7-1 and UL1059 or UL1953 compliance
- High fill ratio leading to better short-circuit performance per IEC and UL
- Significant space-savings over traditional methods used to distribute power within an electrical assembly



NVENT ERIFLEX POWER BLOCKS



- Range up to 1940A IEC / 1680A UL
- Tinned copper or aluminum connecting block allows for the direct connection of copper or aluminum conductors
- No lug needed which makes this solution ideal for high-volume manufacturing
- Compatible with Flexibar and IBSB Advanced
- Compact solution with IP20 rating and halogen-free housing
- Screw retaining cover is hinged and removable as well as transparent for ease of inspection and maintenance
- IEC 60947-7-1 and UL1059 or UL1953 compliance
- High fill ratio leading to better short-circuit performance per IEC and UL
- Significant space-savings over traditional methods used to connect multiple incoming or outgoing cables



nVent ERIFLEX Earthing Accessories

nVent proposes a wide range of solutions for improved **earthing and equipotential bonding** leading to better electrical safety.

NVENT ERIFLEX MBJ BRAIDS



- Prefabricated grounding strap
- Tinned copper
- Integral (solid) palm provides superior electrical performance and durability
- Recommended by the EMC/EMI directives
- Ideal solution for high volume manufacturing
- Compliant to IEC and UL standards

NVENT ERIFLEX CPI BRAIDS



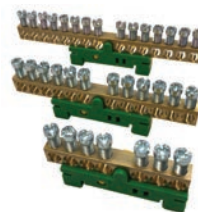
- Prefabricated grounding strap
- Made of 316L stainless steel
- Ideal for installation in a corrosive environment (e.g., semiconductor exhaust gas)
- Recommended by the EMC/EMI directives
- Ideal solution for high volume manufacturing
- Compliant to IEC and UL standards

NVENT ERIFLEX ISO-TP INSULATORS

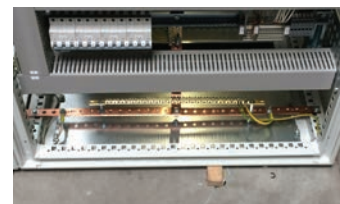
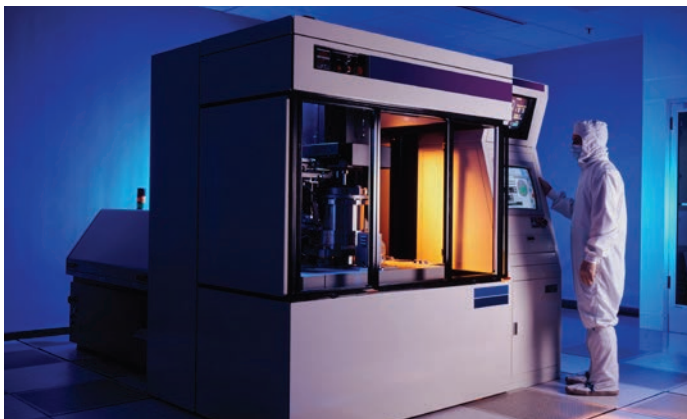
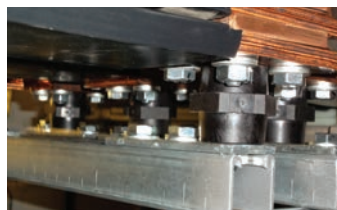


- Halogen-free
- High resistance to leakage current
- Great stability of electrical and mechanical parameters
- Fiberglass reinforced
- Compliant to IEC and UL standards

NVENT ERIFLEX EARTHING BARS



- Available in brass, nickel plated brass or tinned aluminum depending on the configuration
- Direct connection to DIN rail for some models
- No ring lug needed
- Compliant to IEC and UL standards

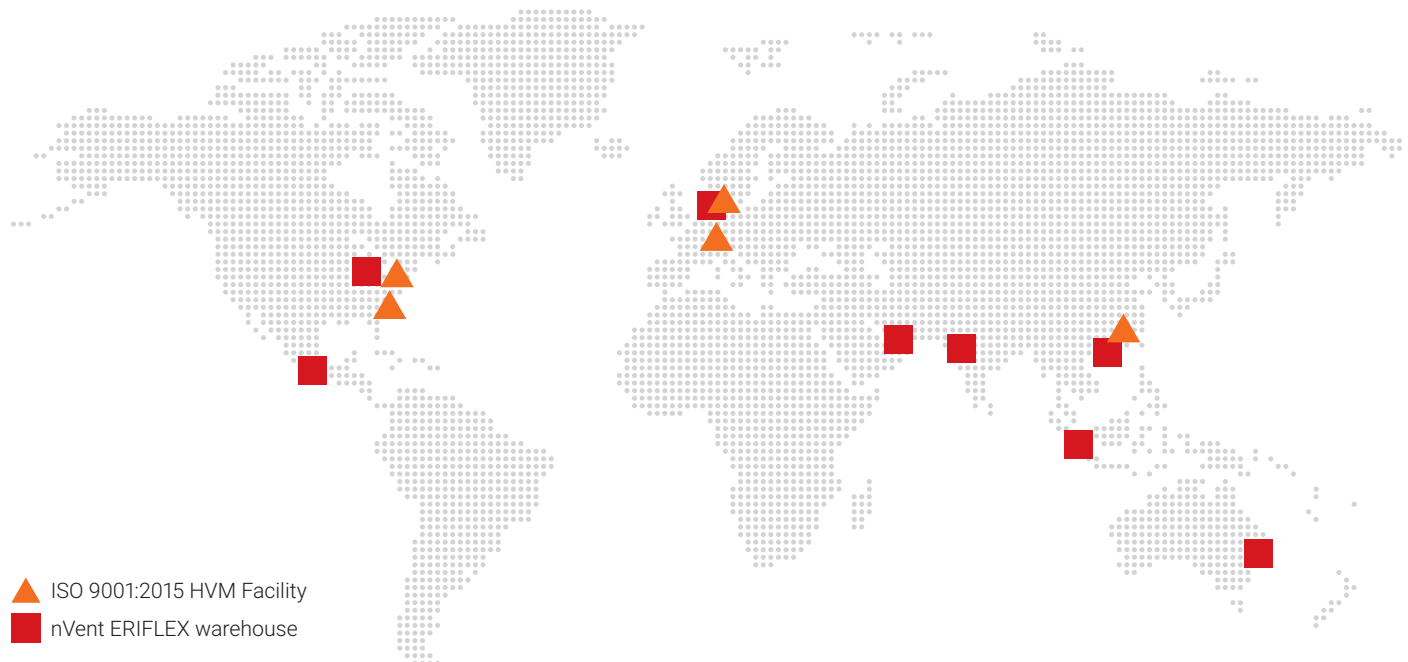
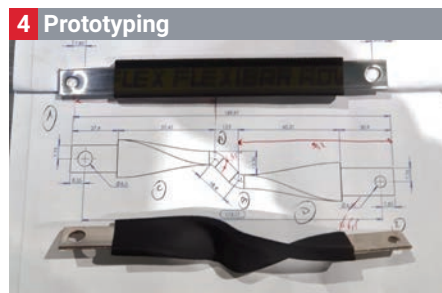


nVent ERIFLEX Customized and Engineered Solutions



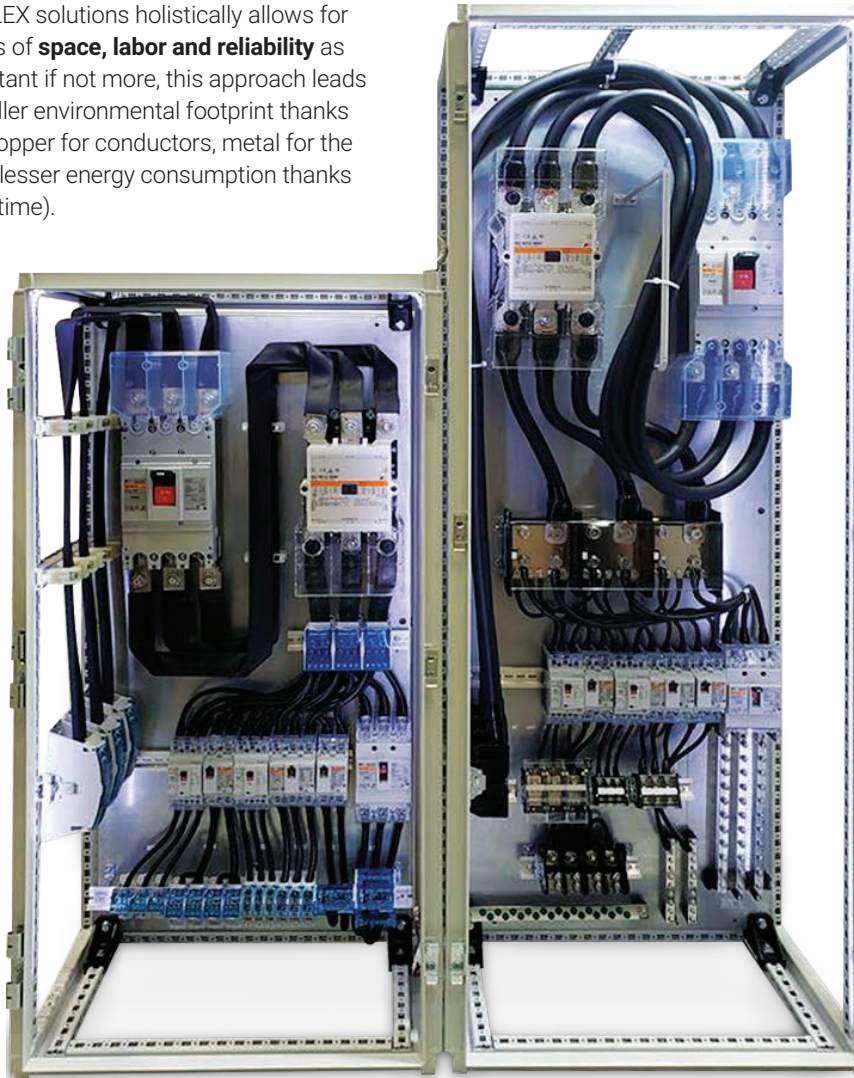
From engineering support to high-volume manufacturing of customized solutions, nVent can provide the following services to assist you overcoming your technical and production challenges:

- In-person or virtual training sessions to your engineering teams distributed around the globe
- Engineering design support (e.g., CAD modeling of Flexibar Advanced connections)
- High-capacity manufacturing of customized solutions in our ISO 9001:2015 facilities in France, the USA and China
- Stocking in our warehouses in the Netherlands, the USA, Mexico, Singapore or Shanghai to cite a few.



Combining nVent ERIFLEX Solutions

Combining nVent ERIFLEX solutions holistically allows for greater savings in terms of **space, labor and reliability** as shown below. As important if not more, this approach leads to a system with a smaller environmental footprint thanks **savings in materials** (copper for conductors, metal for the enclosure) and energy (lesser energy consumption thanks to a reduced assembly time).



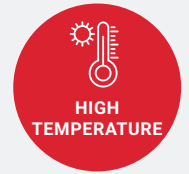
LOW
SMOKE



HALOGEN
FREE



FLAME
RETARDANT



HIGH
TEMPERATURE



TINNED
COPPER

nVent ERIFLEX Solutions and the SEMI 22 Standard

Sound semiconductor manufacturing equipment is typically designed following the guidelines set forth in the SEMI 22 standard (SEMI S22-0718 SAFETY GUIDELINE FOR THE ELECTRICAL DESIGN OF SEMICONDUCTOR MANUFACTURING EQUIPMENT). Implementing nVent ERIFLEX solutions altogether allows the equipment designer to meet and exceed the requirements of SEMI 22 as illustrated below but not limited to:

- Protection against electric shock during normal operation (10.2.4) thanks to the reinforced insulation used on our nVent ERIFLEX flat conductors (IBSB, Flexibar Advanced).
- Resistance to flame spread (16.2.4 c)) thanks to our UL94V-0 ratings.
- Reduction of the hazards associated with insulation due to (...) the emission of toxic or corrosive fumes (16.2.6) thanks to our low-smoke and halogen-free Advanced insulation.
- Finger-safe solutions (22.15) thanks to our IP20 rated power and distribution blocks.
- Clean routing of the incoming and outgoing cables thanks to the proprietary design of our power blocks which can directly accommodate ferule type conductors for reduced assembly time (17.1.3 and 17.2 e).

nVent : Other Inside Equipment Solutions

NVENT ERICO SURGE PROTECTION



NFPA 79, the electrical standard for industrial machinery mentions in article 7.8.1 that "industrial machinery with safety circuits not effectively protected from the effects of overvoltage's due to lightning or switching surges shall have surge protection installed". Additionally, article A.4.5.2 mentions that "the installation of Surge Protection Devices (SPD) and/or filters (...) is recommended to improve electromagnetic compatibility". Installing surge protectors within the power supply your equipment is therefore a preferred practice especially since one can never be certain of the quality of the SPDs installed upstream in the main and distribution switchboards.

Under its nVent ERICO brand, nVent can provide UL and IEC compliant surge diverters and filters that help you meet and exceed the requirements of NFPA 79 therefore leading to a reduced risk of costly equipment downtimes.



NVENT HOFFMAN ENCLOSURES AND COOLING



nVent carries a wide range of enclosure and cooling solutions under its nVent HOFFMAN brand. nVent HOFFMAN solutions protect critical controls and systems around the world while ensuring maximum productivity.



NVENT RAYCHEM LEAK DETECTION SOLUTIONS



Leak detection systems enhance environmental health and safety by ensuring that leaks are discovered before any significant damage can occur. nVent RAYCHEM TraceTek solutions detect liquid leaks, whether they're water, fuel or aqueous chemicals. nVent RAYCHEM Tracetek TT3000 sensing cable detects the presence of conductive liquids at any point along its length. Most acids and bases and even deionized water can be sensed and located. Installed with a Tracetek alarm and locating module, the cable senses the presence of fluid, triggers an alarm, and pinpoints the location. nVent RAYCHEM Tracetek solutions are already in use by semiconductor equipment manufacturers worldwide and comply to UL, IEC or FM among others.



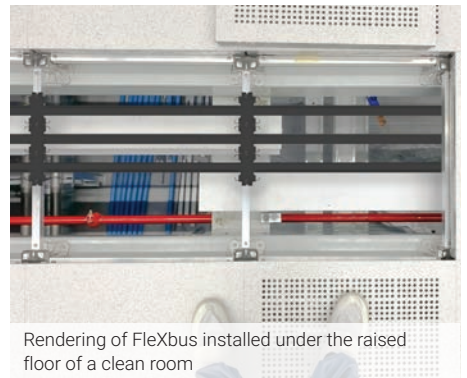
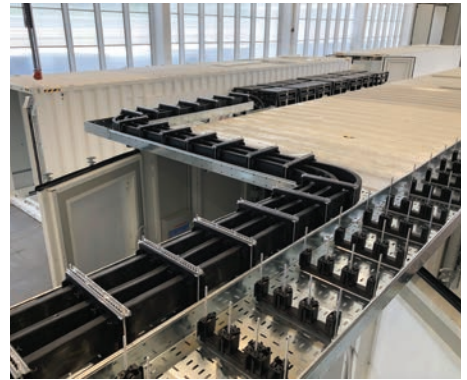
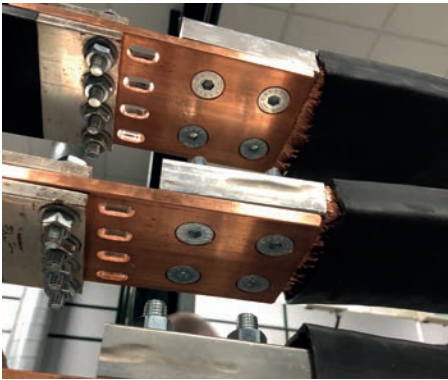
nVent Equipment Interconnection Solutions

NVENT ERIFLEX FLEXBUS



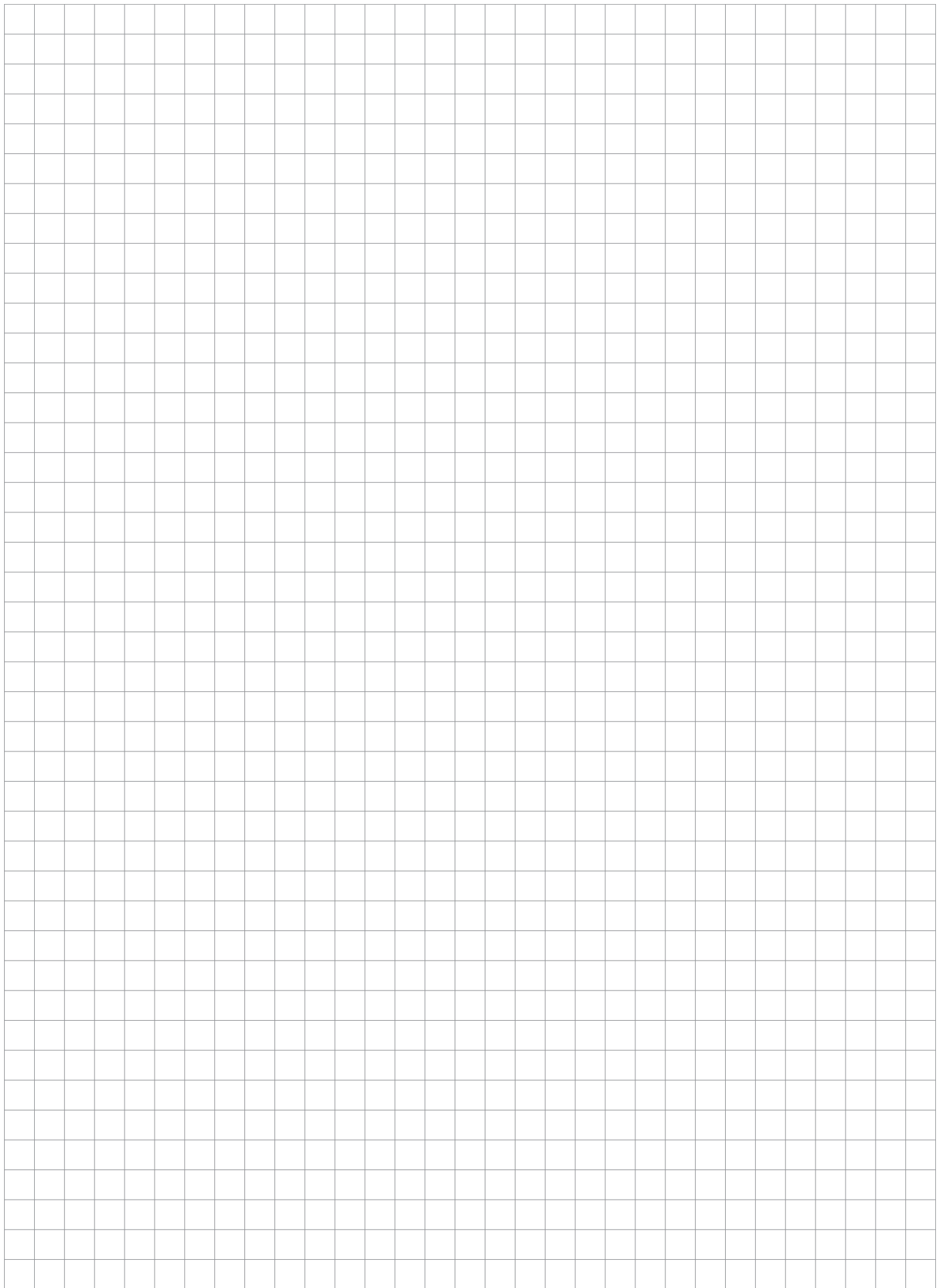
The innovative and patented nVent ERIFLEX Flexbus facilitates the interconnection of electrical equipment inside your fab. The Flexbus Conductor is a flexible, copper-plated, aluminum flat braid that features our nVent ERIFLEX Advanced technology insulation and is available in length from 2 to 10 meters* under different cross sections and for use in 500A to 4500A rated applications. Installation of the Flexbus is typically faster than that of busduct/busway or to that of multiple runs of cables. Flexbus system is short-circuit tested in full up to 67kA RMS/147kA Peak (IEC).

*Longer lengths available upon request



Rendering of Flexbus installed under the raised floor of a clean room

For more information on semi conductor; please send us an email to: semiconductor@nVent.com



Our powerful portfolio of brands:

CADDY ERICO HOFFMAN RAYCHEM SCHROFF TRACER



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