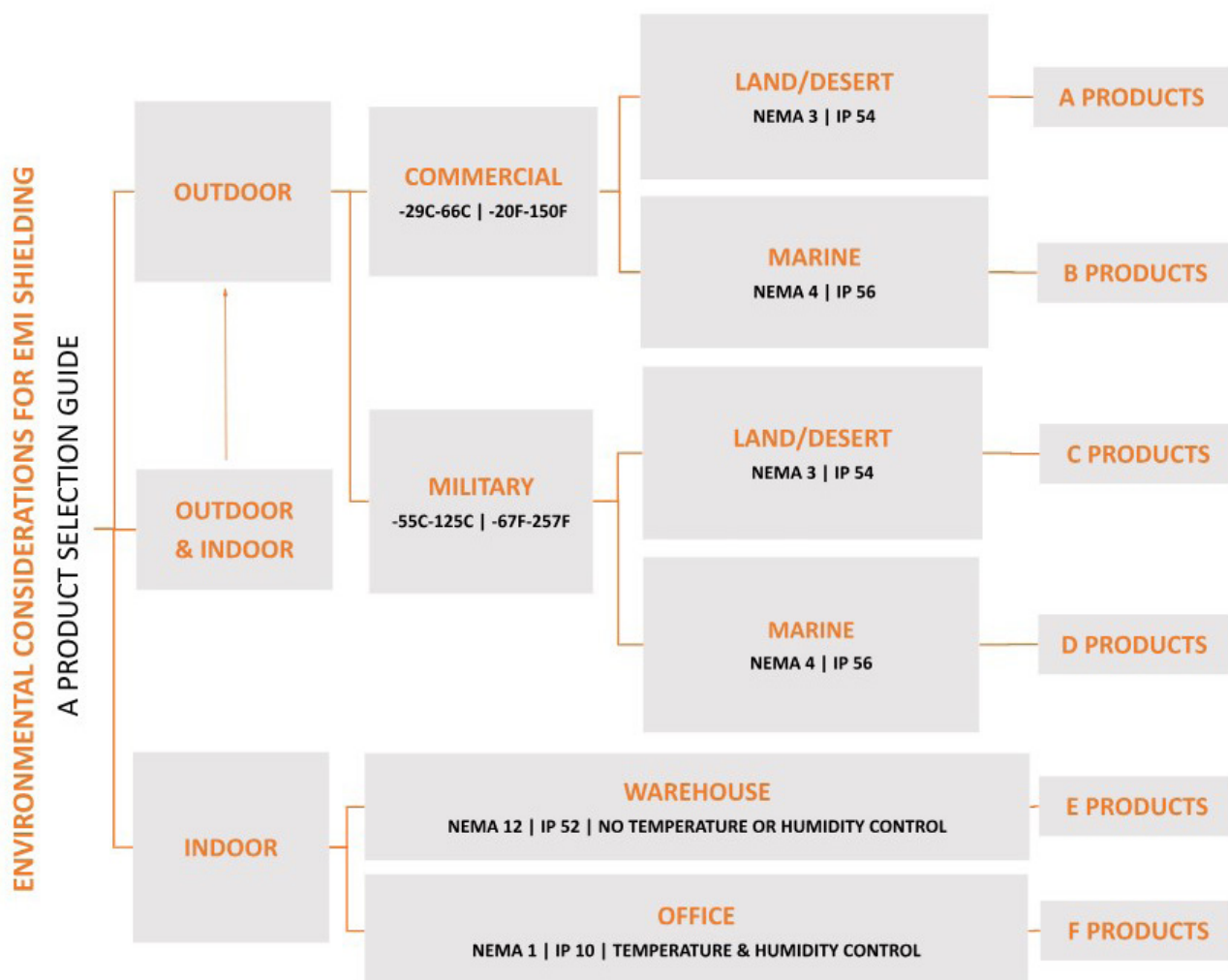




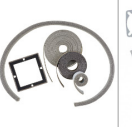



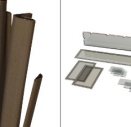
Environmental Considerations for EMI Shielding - A Product Selection Guide

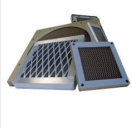

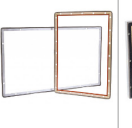



Using the process below, you can easily find the right materials for your EMI Shielding application:

1. Simply begin on the left side, selecting your specifications as you move right to the product type.
2. Then consult the EMI Shielding Products RE: Environmental Specification Chart on Page 2.
3. If you need more information on an environmental specification, review the Environmental Specifications on Page 3.





EMI Shielding Products RE: Environmental Specification

SHIELDING PRODUCTS FOR BOX AND ENCLOSURE DOORS / COVERS							
Product Name	Conductive Elastomer	Fingerstock Gasket	Shield Strip Gasket	Multicon Gasket	Knitted Wire Gasket	Conductive Fabric	Conductive Window
NEMA/ IP Compliant Product Type	A, B, C, D, E, F	E, F	A, B, E, F	A, B, C, D, E, F	E, F	E, F	A, B, C, D, E, F

SHIELDING PRODUCTS FOR AIR INTAKE AND EXHAUST							
Product Name	Vent Panel	Air Filter	Frame Gasket	Honeycomb Waveguide Panels	Slim Line Ventilation Panels	EMI Shielded Ventilation Panels	
NEMA/ IP Compliant Product Type	E, F	E, F	E, F	E, F	E, F	E, F	

SHIELDING PRODUCTS FOR CONNECTORS AND CABLES							
Product Name	Wire Mesh Tape	Metal Foil Tape	Ferrite Material	Wire Mesh Washer	Connector Gasket		
NEMA/ IP Compliant Product Type	N/A	N/A	N/A	E, F	A, B, C, D, E, F		

SHIELDING PRODUCTS FOR ELECTRONICS							
Product Name	Board Level Shield	Absorber Material					
NEMA/ IP Compliant Product Type	N/A	N/A					

Environmental Considerations
for EMI Shielding



Common Environmental Specification for EMI Shielded Enclosures

OUTDOOR	Applications exposed to the elements such as rain, moisture, salt fog and uneven temperatures
INDOOR	Applications in semi-controlled environments, no rain but possible moisture and temperature variations
COMMERCIAL	-29C-66C -20F-150F For applications where MIL-STD-810 design considerations and compliance is NOT required.
MILITARY	-55C-125C -67F-257F For applications where MIL-STD-810 design considerations and compliance IS required.
LAND / DESERT	NEMA 3 IP 54 Indoor and outdoor use, protection for personnel against access of hazardous parts, falling solid foreign objects, windblown dust and the ingress of rain, sleet and snow
MARINE	NEMA 4 IP 56 Indoor and outdoor use, protection for personnel against access of hazardous parts, falling solid foreign objects, windblown dust and the ingress of rain, sleet and snow, splashing water and hose directed water
WAREHOUSE	NEMA 12 IP 52 NO TEMPERATURE OR HUMIDITY CONTROL Indoor use, protection for personnel against access to hazardous parts, falling solid foreign objects, circulating dust, lint, fibers, and the ingress of dripping water and light splashing
OFFICE	NEMA 1 IP 10 TEMPERATURE & HUMIDITY CONTROL Indoor use, protection for personnel against access to hazardous parts, protection against ingress of solid foreign objects or falling dirt
NEMA 1	Indoor use to provide a degree of protection to personnel, enclosure and electrical equipment from: <ul style="list-style-type: none"> • access to hazardous parts • ingress of solid foreign objects (falling dirt and windblown dust)
NEMA 3	Indoor or outdoor use to provide a degree of protection to personnel, enclosure and electrical equipment from: <ul style="list-style-type: none"> • access to hazardous parts • ingress of solid foreign objects (falling dirt and windblown dust) • water (rain, sleet, snow) • damage from formation of ice on the enclosure
NEMA 4	Indoor or outdoor use to provide a degree of protection to personnel, enclosure and electrical equipment from: <ul style="list-style-type: none"> • access to hazardous parts • ingress of solid foreign objects (falling dirt and windblown dust) • ingress of water (rain, sleet, snow, splashing water, and hose directed water) • water (rain, sleet, snow) • damage from formation of ice on the enclosure
NEMA 12	Indoor use to provide a degree of protection to personnel, enclosure and electrical equipment from: <ul style="list-style-type: none"> • access to hazardous parts, to be constructed without knockouts • ingress of solid foreign objects (falling dirt and windblown dust) • ingress of water (dripping and light splashing)
IP 10	<ul style="list-style-type: none"> • Protection from object greater in size than 50mm such as a hand. Additional IP Rating Information
IP 52	<ul style="list-style-type: none"> • Protection from dust. Limited ingress of dust. Will not interfere with operation of the equipment. Two to eight hours. • Protection from vertically falling drops of water with enclosure tilted up to 15 degrees from the vertical. Limited ingress permitted. Additional IP Rating Information
IP 54	<ul style="list-style-type: none"> • Protection from dust. Limited ingress of dust. Will not interfere with operation of the equipment. Two to eight hours. • Protection from water splashed from all directions. Limited ingress permitted. Additional IP Rating Information
IP 56	<ul style="list-style-type: none"> • Protection from dust. Limited ingress of dust. Will not interfere with operation of the equipment. Two to eight hours. • Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities. Additional IP Rating Information