

K-Net™ HT Bird Exclusion Netting & Hardware

Includes specifications for: K-Net HT Bird Exclusion Netting and the Tensioned Perimeter & Support Cable System.

Nixalite's exclusive **K-Net HT Bird Exclusion Netting** is the most durable and versatile bird netting available. The 3/4" (1.9 cm) square mesh keeps out all but the smallest of pest bird species. It is the bird exclusion netting of choice for applications exposed to difficult or exposed environments. Use K-Net HT Bird Exclusion netting to stop pest birds from getting to their preferred and protected roosts.

K-Net HT Bird Exclusion Netting is made of black, high density polyethylene (HDPE) mesh. Each 12-ply knotted strand has a 75 pound (34 kg) knotted breaking strength. All K-Net netting pieces are both seamless and borderless for clean edges and easier perimeter fastening. A tensioned perimeter and support cable system is often used to install the K-Net Bird Exclusion Netting. K-Net HT has no equal - no substitutions are allowed.

The following specification outline is presented in a modular format making it simple to include or exclude any combination of Nixalite's K-Net HT Bird Exclusion Netting and Tensioned Perimeter & Support Cable system as needed for each project.

List Nixalite K-Net HT 3-part specifications in the following locations;

Master Format 1995 – 10290 – Bird & Pest Control

Master Format 2004 – 10 81 00 - Pest Control Devices

Master Format 2004 – 10 81 13 – Bird Control Devices

PART 1 - GENERAL

1.1 - SYSTEM DESCRIPTION:

- A. **K-Net HT Bird Netting** is constructed of black & stone (tan) high density polyethylene (HDPE) that is abrasion, flame, rot and UV resistant. K-Net HT has a 3/4" (1.9cm) square mesh to keep out all but the smallest of pest birds. All K-Net netting pieces are both seamless and borderless for clean edges and easier perimeter fastening.
- B. **Bird Netting Hardware** fastens the bird netting to all types of surface shapes and materials. A variety of netting installation tools and accessories are available to make the netting installation an efficient process.
- C. **Surface Cleaning System:** surface disinfectants and deodorizers to neutralize potentially hazardous bird and/or animal wastes and properly prepare the surface for installation.

1.2 - QUALITY ASSURANCE

- A. Installer to obtain, review and understand all of Nixalite of America Inc.'s planning guidelines, estimating worksheets and installation instructions for the K-Net HT Bird Exclusion Netting.
- B. Installer must be completely familiar with the proper installation procedures for the K-Net HT Bird Exclusion Netting and the specified mounting system.
- C. Installer must obtain and record **accurate and complete dimensions** that define the areas specified for enclosure by the K-Net HT Bird Exclusion Netting. Accurate dimensions drive the bird netting and net hardware quantities. Accurate dimensions ensure accurate quotations and material orders.
- D. Installer should contact manufacturer for any updated or newly developed planning or procedural information that may be pertinent to the K-Net HT installation.
- E. Installer to ensure that bird netting meets or exceeds ISO 9001 2000 Quality Management Standards.

1.3 - SUBMITTALS

- A. Manufacturer's literature including K-Net HT Bird Exclusion Netting brochures and installation guidelines. All guides for installing the specified bird netting hardware system and the specified surface cleaning system.
- B. Sample of the K-Net HT Bird Exclusion Netting, in the specified color (black or stone) Sample to be not less than 4" square (10.16 cm. square).
- C. Contractor to complete estimate worksheet detailing the scope of the netting enclosure, and the mounting hardware type, location and spacing.

1.4 – STORAGE & HANDLING

- A. Provide storage to keep all K-Net HT Bird Exclusion Netting system boxes dry, clean and undamaged. Do not stack or place other packaging or objects on the bird netting shipping boxes.
- B. Keep the K-Net HT Bird Exclusion Netting system in original packaging until needed for installation.

PART 2 - PRODUCTS

2.1 – ACCEPTABLE MANUFACTURER

- A. Nixalite of America Inc
1025 16th Avenue, PO Box 727, Dept. NI, East Moline, Illinois 61244; U.S.A.
P: 800.624.1189 or 309.755.8771 - F: 800.624.1196 or 309.755.0077
E: birdcontrol@nixalite.com or planning@nixalite.com
www.nixalite.com

- B. ABC Advanced Bird Control – A division of Nixalite of America Inc.
PO Box 727, Dept. NI, East Moline, Illinois 61244, U.S.A.
P: 888.212.8682 or 309.755.4708 - F: 309.755.1865
E: info@abcbirdcontrol.com
www.abcbirdcontrol.com

2.2 – K-NET HT BIRD NETTING

- A. **Material:** High density polyethylene (HDPE) that is abrasion, UV, flame and rot resistant. Netting to be water proof. Resulting K-Net HT Bird Exclusion Netting is ideal for all bird exclusion applications.
- B. **Color:** Black.
- C. **Construction:** Knotted 3/4" (1.9 cm) square mesh netting. Netting comprised of 12 ply (4 x 3) strands with 75 pounds (33.9 kg) knotted breaking strength. All K-Net netting pieces are both seamless and borderless for clean edges and easier perimeter fastening.
- D. **Standards:** Must meet **ISO 9001 2000 Quality Management Standards.**
- E. **Mesh size:** 3/4" (1.9 cm) square mesh keeps out all but the smallest of birds.
- F. **Netting Sizes:**
Widths: 25' (7.6 m), 50' (15.2 m).
Lengths: 25' (7.6 m), 50' (15.2 m) and 100' (30.4 m).
- G. **Warranties:**
Black K-Net HT has a 15 year limited warranty.
- H. **Thermal & Physical Properties:**
Softening point: 250 F° (122° C).
Melting point: 293 F° (145° C).
Flash point: 660 F° (349° C).
Remains flexible at very low temperatures.
Specific gravity: 0.96 (it floats). K-Net HT will not absorb water.
Chemically inert. Resistant to acids and alkalis at room temperature.

2.3 BIRD NETTING HARDWARE

- A. Installer to contact manufacturer for up-to-date information and recommendations for bird netting hardware applications, item combinations as well as new items and procedures.
- B. Available in Tensioned Cable Hardware system, the Poly Hardware system or a hybrid system that combines methods from different fastening procedures. Choose the hardware system that best suits the netting installation and conditions.
- C. **Tensioned Perimeter and Support Cable Hardware System:** Choose the **Connection, Corner, Cable Guide** and **Finishing** hardware that best suits the installation surface. Net Hardware can be mixed to suit changing surface materials and conditions.

D. Net Cable & Connection Hardware:

- a) **Net Cable:** Aircraft grade, all stainless steel, 7 x 7 (49 strand), 3/32" (2.2 mm) diameter cable with 900 lb. (407 kg) breaking strength. Net Cable comes in 250' (76.2 m) and 500' (152.4 m) spools.
- b) **Turnbuckles:** Stainless steel, hook & eye turnbuckles. The size of the turnbuckle is determined by the maximum continuous cable length of any one cable run. For one **Small Turnbuckle** the max continuous cable length is 25 ft. (7.6 m). For one **Medium Turnbuckle** the max continuous cable length: 50 ft. (15.2 m). For one **Large Turnbuckle** the max continuous cable length: 75 ft. (22.9 m).
- c) **Net Ferrules:** Zinc plated copper core crush ferrules for 3/32" (2.2 mm) dia. cable. Acceptable connection when the max continuous cable length is 25 ft. (7.6 m) **OR LESS**. Always use at least 2 ferrules per cable loop connection. Always use Nixalite's Cable Swaging Tool to crush the ferrules onto the cable at all loop connections. Always use a Cable Thimble with Net Ferrules.
- d) **Wire Rope Clamps:** Galvanized or stainless steel wire rope clamps for 3/32" (2.2 mm) diameter cable. Mandatory for all loop connections on cable runs of 25' (7.6 m) **OR MORE**. Always use 2 clamps per cable loop connection or more. Always use a Net Cable Thimble with wire rope clamps. Use the appropriate wrench or hex driver to tighten the Wire Rope Clamp around the Net Cable at all loop connections.
- e) **Cable Thimble:** Forged stainless steel Cable Thimble for 3/32" (2.2 mm) diameter cable. The Thimble prevents cable fraying and creasing when creating loop connections and/or tensioning the Net Cable after installation. One Thimble is required for each loop connection.

E. Corner Hardware (Anchoring):

- a) **Eyebolts:** Use as corner hardware in steel, thick sheet steel, cast iron, masonry and stone (with Machine Screw Anchors). Extreme duty stainless steel eyebolt, 2" (51 mm) long, 9/16" I.D. (14.3 mm) with 1/4-20 NC threads and stainless steel hex nut. Maximum distance between eyebolts: 50' (15.2 m).

To fasten to Steel: If back of steel is accessible, drill clearance hole for stem, apply adhesive in hole, install eyebolt and use 1/4 - 20 NC hex nut to secure. If back of steel is not accessible, drill then tap the hole for 1/4 - 20 NC thread. Apply adhesive into hole, apply thread locker on eyebolt threads. Install the eyebolt.

To fasten to Masonry: Drill the recommended hole diameter and depth in the masonry surface to receive the Machine Screw Anchors. Apply adhesive/sealer in the hole. Push Machine Screw Anchor into the hole and seat it properly with the Setting Tool. Thread eyebolt into the anchor threads until tight.

- b) **Screw Eyes:** Use as corner hardware in wood and wood core surfaces. Extreme duty stainless steel screw eyes 2" (51 mm) long, 17/32" I.D. (13.5mm). Pilot holes recommended. Apply adhesive sealer into pilot holes before installing the Screw Eyes. Maximum spacing between screw eyes: 50' (15.2 m).
- c) **Machine Screw Anchor:** Zinc plated anchor – 1/2" (12.7mm) diameter x 1" (25.4mm) deep with 1/4-20 threads inside. Setting tool included with anchors.

F. Cable Guide Hardware:

- a) **Small Screw Eyes:** Use to keep cable close to the installation surface. Use on wood, sheet metal and wood core surfaces. Heavy duty, stainless steel, 1-3/16" long x 7/32" I.D. (31 mm long x 5.3 mm I.D.). Maximum spacing: 24" (61 cm) O. C. Pilot holes recommended. Apply adhesive/sealer in all pilot holes before installing the Screw Eyes.
- b) **Small Eyebolts:** Use to keep cable close to the installation surface. Use on steel, thick sheet metal and masonry surfaces. Heavy duty, stainless steel, 1 3/8" long x 9/32" I.D. (35 mm long x 7.1 mm I.D.) with stainless steel hex nut. Maximum spacing: 24" (61 cm) O. C.

To fasten to Steel: If back of steel is accessible, drill clearance hole for stem, apply adhesive in hole, install eyebolt and use 10 - 24 NC hex nut to secure. If back of steel is not accessible, drill then tap the hole for 10-24 NC thread. Apply adhesive into hole, apply thread locker on eyebolt threads and install the eyebolt.

To fasten to Masonry: Drill the recommended hole diameter and depth in the masonry surface to receive the Machine Screw Anchors. Apply adhesive/sealer in the hole. Push Machine Screw Anchor into the hole and seat it properly with the Setting Tool. Thread eyebolt into the anchor threads until tight.

- c) **Sidewinders:** for heavy gauge sheet metal, structural steel up to 1/2" thick and masonry surfaces. Maximum spacing: 24" (61 cm) O. C. All Sidewinders to be installed with the Sammy Socket. No substitutions.
Sidewinders for steel are self-drill, self-tap items, no pilot hole is required. Sidewinders for concrete require 1/4" (6.35 mm) diameter and 2" (50.8 mm) deep drilled holes. Apply adhesive/sealer into the drilled holes and install the Sidewinder Sammy Socket Driver.
- d) **E-Z Clip:** Use to keep cable close to the installation surface. Stainless steel bracket holds cable very tight to surface. Used on all types of installation surfaces. E-Z Clip has mounting hole(s) for 1/8" shank screws or nails (not supplied).
- e) **Hammer-On Flange Clips:** Used to keep cable close to the installation surface. Hammer-On Flange Clips are available in block oxide coated spring steel or stainless steel. Hammer-On Flange Clips routes the Net Cable parallel to the outer edges of beams or other structural steel flanges. Contact manufacturer for installation guidelines.
- f) **Stainless Steel Angle Bracket:** Used to keep the Net Cable close to the installation surface. A 90° stainless steel angle bracket with two (2) holes – one for mounting the other for the cable. Fasten with the appropriate fastener (not supplied). Use stainless steel screws or nails. Apply adhesive/sealer over head of installed hardware.
- g) **HD Stainless Steel Cable Clamp:** Used to keep the Net Cable close to the installation surface. A heavy duty saw-tooth edge clamp that fits up to 3/4" (19.0 mm) thick steel. Routes the Net Cable parallel to the outer edges of beams, plates and other structural steel flanges. Contact manufacturer for installation guidelines.

- h) **Stainless Steel J-Clamp:** Used to keep the Net Cable close to the installation surface. A J-shaped strap of stainless steel with mounting and cable guide holes. Fasten with the appropriate fastener (not supplied). Use stainless steel screws or nails. Apply adhesive/sealer over head of installed hardware.
- i) **Stainless Steel Lag Screw w/eyelet:** Used to keep the Net Cable close to the installation surface. Fastens to wood, composite, wood core products. Drill pilot hole, apply adhesive/sealant in pilot, install Lag Screw so eyelet is no more than ½” (12.7 mm) above the installation surface.

G: Finishing Hardware:

- a) **Net Rings:** Three (3) styles of stainless steel net rings used to attach the netting mesh to the cables, to close openings in the netting mesh and to fasten the Net Zippers to the netting.
 Net ring quantity requirements per attachment:
Netting to Cable: 16 net rings per foot (each netting mesh).
Lapped Seams: 32 net rings per foot (1 ring per mesh on each side of seam).
Net Zipper Installation: 32 net rings per foot (1 ring per mesh on each side of zipper).
- b) **Net Zipper:** Allows for access to areas behind the bird netting installation. Available in both black and stone (tan) and in 2 ft. (61 cm), 4 ft. (122 cm), 6 ft. (183 cm) and 8 ft. (244 cm) lengths. Heavy duty, marine-grade, black and tan Net Zipper with ¾” (1.9 cm) heavy fabric tape, open top and auto lock slider.

D. Poly Hardware: All poly hardware is made from UV stabilized black polypropylene. While it can be used to install the K-Net HT Bird Netting, it is more commonly used with the PollyNet line of bird exclusion netting. Poly Hardware combinations can be mixed to suit changing surface materials and conditions.

- a) **Poly Clip:** Perimeter fastening. The Poly Clip can be fastened to the cable of a tensioned perimeter cable system or it can be snapped shut over the outer edges of the bird netting. Secure to the installation surface with the appropriate fastener (not supplied). Maximum spacing: 12” (30.5cm) O.C.
- b) **Net Ties:** Multi-purpose fastener. Quickly fastens the netting fabric to all types of objects. Use to prevent netting sag or loose fitting nets by securing the netting to objects above or behind netting installation. Three sizes to choose from.
- c) **Poly Cord:** Multi-purpose fastener. Reinforce seams, patch tears, close circular openings, use for overhead support. NOT for perimeter fastening.

2.4 – SURFACE DISINFECTANTS

- A. **Steri-Fab:** Surface disinfectant and bactericide designed to neutralize bird waste, making it safe for removal. Steri-Fab quickly kills disease causing bacteria, parasites, fungi, insects, etc. This is a non-residual product. It becomes completely inert after it dries. **Do not use with Microcide-SQ on the same surface at the same time.**
- B. **Microcide-SQ:** A broad spectrum disinfectant, cleaner and deodorizer used to sanitize hard surfaces as well as fabrics and clothing. Use to kill a wide spectrum of organisms and disease causing bacteria. **Do not use with Steri-Fab on the same surface at the same time.**

- C. **Microsan:** Anti-microbial personal protection products to help prevent disease transmittal before, during and after working on and around surfaces contaminated with bird and animal wastes. Use to compliment personal protection equipment standards (PPE).
- D. **Safety Equipment:** Nixalite offers personal protection equipment (PPE) to protect personnel from the hazards related to pest bird and animal waste materials.

PART 3 - EXECUTION

3.1 - INSPECTION

- A. Visually inspect the surfaces that will receive the netting hardware and all areas that will end up behind or inside the netting installation. Note damaged surfaces or incomplete construction that could compromise the bird netting installation.
- B. Note all areas, surfaces or objects that may require maintenance or periodic replacement after the bird netting is installed (i.e. lights, electrical equipment, etc.). Use the appropriate netting accessories to allow access behind the installed netting system.
- C. Note any objects or conditions that could damage the installed bird netting. Install the K-Net HT in such a manner as to avoid these conditions.

3.2 - PREPARATION

- A. **Field Measurements:** Verify the dimensions for each area specified for enclosure with the K-Net HT Bird Exclusion Netting. Use manufacturers Planning Guides and Estimate Worksheets to verify that sufficient quantities of bird netting and net hardware will be installed at each location specified for bird netting.
- B. Make sure all installation surface finishing requirements have been accomplished before installing the K-Net HT Bird Enclosure Netting. Bird Exclusion Netting is to be the last item installed on each specified surface. DO NOT apply any surface coating or treatment (paint, sealer, etc.) over or on the installed K-Net HT Bird Exclusion Netting or the mounting hardware.

3.3 – SURFACE CLEANING

- A. All surfaces to be clean, dry and free of obstructions before the K-Net HT Bird Exclusion Netting is installed.
- B. **If Bird Waste Is Present:**
Treat, neutralize and safely remove all bird waste from installation surfaces. Installer must follow all municipal, state and federal regulations regarding the proper removal and disposal of bird droppings and waste materials such as nests and dead birds.
- C. Use Nixalite’s surface cleaning products to neutralize any bird droppings, nests and related waste materials that may be present. Allow all surfaces to air dry completely, and then reapply to sanitize and deodorize the surface before proceeding. Strictly follow treatment instructions provided with Nixalite’s surface cleaning products.

- D. Use Nixalite anti-microbial and anti-bacterial personal protection products to help prevent disease transmittal when working around surfaces contaminated with bird droppings.

3.4 - INSTALLATION

- A. Make sure the installation surfaces are clean, dry and free of any debris or obstructions.
- B. Install the bird netting hardware as recommended by manufacturer. General order of installation is to install all the Corner hardware, cable guides and connection hardware. Run the Net Cable through the net hardware. Leave the turnbuckles loose.
- C. Install K-Net HT as recommended by the manufacturer. If necessary cut the K-Net HT to fit the area. If multiple pieces are needed, join the pieces together with the recommended Net Ring hardware. Use the Net Rings to fasten the netting mesh to the perimeter and support cables. Tighten the turnbuckles to eliminate any wrinkles in the netting.
- D. Install K-Net HT to avoid contact with machinery, vehicles, extreme heat, tree branches, etc. Make necessary adjustments to keep netting a sufficient distance from these objects or conditions.
- E. Finished K-Net HT installation to be taught, free of wrinkles, gaps and openings.

3.5 – ADJUSTMENTS / CLEANING

- A. Remove net or cable hardware debris and waste from project site. Inspect finished installation. Make any adjustments needed to conform to Nixalite’s bird netting installation guidelines.
- B. K-Net HT Bird Exclusion Netting is a physical and passive barrier. It relies on optimal placement and proper installation. Exclusion netting must block off or seal up all routes and paths that pest birds follow to their preferred roosts. Periodic inspections are recommended to make sure the bird netting stays in good condition.
- C. Note any holes, gaps or openings in the bird net installation that birds can use to bypass or get around the netting barrier. Correct these conditions immediately.

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