# HIGHITENSILEFENCING PRODUCT \& INSTALLATION MANUAL 

- Less Expensive than Barbed and Woven Wire
- Lasts Longer
- Looks Better and is Easy to Install


HORSE HIGH, HOG TIGHT \& BULL STRONG

LOW COST: Due to the need for fewer line posts than are required for barbed and woven wire, the cost per foot is substantially less than conventional fencing. The material cost for a sixstrand high-tensile fence is slightly less than that of a four-wire barbed wire fence. High-tensile is $30 \%$ less than a standard woven wire fence. High-tensile fencing stretches your fencing dollar.

LASTS LONGER: Every component is manufactured to the highest standards. High-tensile wire fencing has been used extensively in Australia and New Zealand for over fifty years without rust. All insulators are manufactured to resist extreme ultraviolet exposure. Plan on your high-tensile installation to last a lifetime.

LOOKS GOOD: High-tensile fencing is aesthetically pleasing, stronger than conventional fencing, and will contain any breed of livestock. It is not difficult to build, virtually maintenance free and costs less on a per-foot basis than other types of agricultural fencing. It is truly the fence of tomorrow that is available to the U.S. farmer and rancher, TODAY!

## HISTORY OF HIGH-TENSILE

High-tensile wire fencing is the most significant improvement in farm fencing since the introduction of barbed wire in 1874. Although relatively new to the United States, high-tensile wire fences have been used to control cattle and sheep on the vast ranches of Australia and New Zealand for 50 years. The main advantage of high-tensile fencing is that it not only contains livestock, it is an excellent deterrent, when electrified, for predators.

High-tensile wire fences make efficient use of multiple strands of smooth, $12^{1 / 2}$ gauge galvanized steel wire with Class 3 zinc coating. The wire, when strung and strained to the recommended 250 lb . of tension, withstands up to 1650 lbs. of livestock pressure per strand and low temperature contraction without losing its elasticity. The high-tensile fence is more secure, looks neater and lasts longer, with less maintenance than either barbed wire or woven wire fence.

High-tensile fence is truly HORSE HIGH, HOG TIGHT \& BULL STRONG not to mention how easy it is on the consumer's pocketbook.

## ELECTRIC FENCE DESIGNS

SIX WIRE FENCE FOR CATTLE AND HORSES
Wire spacing from ground up: 10", 5", 6", 7", 8", and 9"
Hot wires from ground up are wire 1, wire 2, wire 4, and wire 6
Single brace required
Line posts are $3-4^{\prime \prime} \times 7$ '. Dips and rises, $4^{\prime \prime} \times 8^{\prime}$
Post spacing: Maximum spacing - 100' centers
Poly-spacers: 50' centers or as needed
FIVE WIRE FENCE FOR CATTLE AND HORSES
Wire spacing from ground up: 11", 7", 8", 9", and 10"
Hot wires from ground up are wire 1, wire 3, and wire 5
Single brace required
Follow the specifications for the six wire electric fence

## EIGHT WIRE FENCE FOR HORSES

Wire spacing from ground up: 16", 5", 5", 5", 6", 6", 7", and 8" Hot wires from ground up are wires 1 , wire 4 and wire 8
Double brace required
Post spacing: 40' centers
Poly-spacers: 10' centers

## FOUR WIRE CROSS FENCING

Wire spacing from ground up: 13", 8", 9", and 10"
Hot wires from ground up are wire 1, wire 2, and wire 4
Single brace required
Follow the specifications for the 6 wire electric installation

## NON-ELECTRIC FENCE DESIGN

EIGHT WIRE FENCE FOR CATTLE, HORSES, SHEEP AND GOATS

Wire spacing from ground up: 4", 5", 5", 5", 6", 6", 7", and 8" Double brace required
Line posts are 4" x 7 '

Post spacing: Maximum spacing - 30' centers
Poly-spacers: Maximum spacing - 10' centers

## ELECTRICAL CONNECTIONS

Connecting hot wires and going under gateways. FIGURE 17.


## GROUNDING FENCE ENERGIZER

For an adequate ground, drive three 6-foot lengths of approved ground rods 10 feet apart into the soil. Attach a wire from the energizer to each of the ground rods in a series. At each connection, use an approved ground rod clamp. FIGURE 18.


## POLY SPACERS

Use to insure wire spacing integrity when line posts are placed more than 30 feet apart. Attach preformed spacer clip loosely with a twisting tool to each wire so as to allow lateral wire movement. FIGURE 16.


One of the key components of the HighTensile Fencing System is poly spacers which allow the installer to increase the distance between line posts. This distance varies from 30 feet to 100 feet between posts depending on the application. Using poly spacers saves the expense of purchasing additional posts, not to mention the time and labor of setting more posts.

## HIGH-TENSILE FENCE SYSTEM

| HIGH-TENSILE WIRE and TOOLS | MODEL NO. AND DESCRIPTION | MASTER CARTON |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | NO. UNITS | DIMENSIONS (inches) | VoL. (cu.f.) | WGHT.(lbs.) |
|  | MODEL FW-00021-ALUMINUM WIRE—1/4 mile, 12.5 gauge spool. <br> UPC Code 0-17051-60021-9 | 4 spools | $12^{1 / 2} \times 12^{1 / 4} \times 17^{1 / 4}$ | 1.53 | 56 |
|  | MODEL 300-303T—SPINNING JENNY WITH BRAKE—Allows easy payout for coiled wire. Includes built-in brake to prevent wire from uncoiling. Assembly required. UPC Code 0-17051-20303-8 | 1 each | $23^{3 / 4} \times 8^{1 / 18 \times 2}{ }^{7 / 8}$ | . 32 | 12.32 |
| 定 | MODEL 300-305-IN-LINE STRAINER HANDLE-Made of hot rolled flat steel formed to fit the in-line strainer (no. 400-400CC). Cadmium electroplated to prevent rust. Packed 10 per box. UPC Code 0-17051-23305-9 | 10 each | $13 \times 7 \times 3^{11 / 2}$ | . 18 | 11.78 |
| Nom | MODEL 300-309-3 HOLE TWISTING TOOL—Used to wrap MG spacer clips (no 400-430) to wire while securing poly spacer posts (no. 200-260). Also used for twisting 12.5, 11 and 9 gauge wire. Packed 1 per bag. Weight-. $15 \mathrm{lb} . / \mathrm{bag}$. UPC Code 0-17051-23309-7 | 10 each | $6^{1 / 4} \times 4^{3 / 4} \times 3^{1 / 4}$ | . 06 | 1.71 |
| arair | MODEL 300-310-HIGH TENSILE WIRE CUTTERS—With specially hardened jaws to cut 12.5 gauge high tensile fence wire. Comfortably shaped handles lock closed to carry-spring open to use. Packed 1 per peggable card. UPC Code 0-17051-23310-3 | 4 each | $11^{1 / 4} \times 3^{1 / 2} \times 3^{1 / 4}$ | . 08 | 2.70 |
|  | MODEL 300-320-4 SLOT CRIMPING TOOL-The four slots allow a wide range of wire or cables to be spliced with one tool. 1-2 slot for 14.5 \& 15.5 ga. wire. $2-3$ slot for 12.5 ga. wire. 3-4 slot for 10 \& 11 ga. wire \& 14 \& 15 ga. barbed wire. 4-5 slot for 9 ga. wire \& 12.5 \& 13.5 ga. barbed wire. Packed 1 per box. UPC Code 0-17051-23320-2 | 1 each | $23^{3 / 4} \times 8^{1 / 8} \times 2^{7 / 8}$ | . 32 | 6.85 |
|  | MODEL 200-250-TWITCH STICK-Used to tighten brace wire on corners and end assemblies. Made of hardwood for strength and durability 2 " x 2 " $\times 24$ " <br> UPC Code 0-17051-22250-3 | 15 each | $24 \times 10 \times 61 / 2$ | . 90 | 46.66 |
|  | MODEL 200-250T—TWITCH STICK—Same specs as 200-250. UPC Code 0-17051-22251-0 | 4 each | $24 \times 4 \times 4$ | . 22 | 9.85 |
|  | MODEL 200-260-MULTI-GROOVE POLY SPACER-Made of high-density polyethylene, UV stabilized, notched every inch. Attach to wire with spacer clip (no. 400-430). 49" long. UPC Code 0-17051-22260-2 | 25 each | $49 \times 6 \times 8$ | 1.36 | 15.18 |
|  | MODEL $400-400$ CC-IN-LINE STRAINER WITH COMPRESSION CLIP-Used to tighten high-tensile wire. Under compression, it automatically feeds into cog reel. UPC Code 0-17051-24404-8 | 50 each | $23^{1 / 2} \times 10^{1 / 4} \times 43 / 4$ | . 67 | 24.66 |
| cos | MODEL 400-399—HEAVY-DUTY IN-LINE STRAINER WITH COMPRESSION CLIP—Used to tighten high-tensile wire. Under compression, it automatically feeds into cog reel. UPC Code 0-17051-24399-7 | 25 each | - | - | 20.50 |
|  | MODEL 400-401-TENSION SPRING-Used to indicate tension of wire. One inch of compression equals 150 lbs . of pull. Use one in conjunction with in-line strainer for each leg of fence. Galvanized to deter rust. UPC Code 0-17051-24401-7 | 20 each | $12^{1 / 2} \times 12^{1 / 2} \times 4^{3 / 4}$ | . 66 | 28.66 |
|  | MODEL 400-402T-5" GALVANIZED BRACE PIN-Use one with 6" $\times 8$ ' post in each single or double brace assembly. Made of $3 / 8$ " carbon steel rods and galvanized. Packed 5 per bag. Each bag weighs .80 lb . UPC Code 0-17051-20402-8 | 10 bags | $7^{1 / 4} \times 6^{1 / 2} \times 4^{1 / 2}$ | . 12 | 8.28 |
|  | MODEL 400-403T—10" GALVANIZED BRACE PIN—Has same features as $5^{\prime \prime}$ pin, but is used with $5^{\prime \prime} \times 8^{\prime}$ post in single brace and one each with $5 " \times 8$ ' post and $4 " \times 8$ ' post in double brace assembly. Packed 5 per bag. Each bag weighs 1.58 lbs . UPC Code 0-17051-20403-5 | 10 bags | $13 / 8 \times 7^{1 / 2} \times 3^{1 / 2}$ | . 17 | 16.36 |
|  | MODEL 400-407-1.75" BARBED FENCING STAPLES—Top quality, made from Class 3, never-rust, galvanized wire, which lasts 3 times longer than Class 1 staples. Solves the problem of loosening line wires by increasing the staple's grip in the post. Packed bulk10 lbs . of staples per box. UPC Code 0-17051-24407-9 | 4 boxes | $10 \times 8 \times 11^{1 / 2}$ | . 53 | 41.80 |

## HIGH-TENSILE FENCE SYSTEM

| ACCESSORIES | MODEL NO. AND DESCRIPTION | MASTER CARTON |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | NO. UNITS | DIIENSIONS (inches) | Voo. (cutit) | WGHt.(bs.) |
|  | MODEL 400-407T-1.75" BARBED FENCING STAPLES—Same specs as $400-407$. Packed bulk- 5 lbs . of staples per box. UPC Code 0-17051-20407-3 | 1 box | $6^{1 / 4} \times 5 \times 33 / 8$ | . 06 | 5.0 |
| $8$ | MODEL 400-424T-CRIMPING SLEEVE 1-2—Used with 14.5 and 15.5 gauge wire. Packed 25 per bag. Weight-. $08 \mathrm{lb} . / \mathrm{bag}$. UPC Code 0-17051-20424-0 | 10 bags | $6^{1 / 4} \times 4^{3 / 4} \times 3^{1 / 4}$ | . 06 | 1.02 |
| $8$ | MODEL 400-425-CRIMPING SLEEVE 2-3-Used with 12.5 gauge wire. Packed 100 per bag. Weight-. 59 lb ./bag. UPC Code 0-17051-24425-3 | 10 bags | $6^{1 / 4} \times 4^{3 / 4} \times 3^{1 / 4}$ | . 06 | 6.05 |
| $8$ | MODEL 400-425T—CRIMPING SLEEVE 2-3—Used with 12.5 gauge wire. Packed 25 per bag. Weight-. $16 \mathrm{lb} . / \mathrm{bag}$. UPC Code 0-17051-20425-7 | 10 bags | $6^{1 / 4} \times 4^{3 / 4} \times 3^{1 / 4}$ | . 06 | 1.76 |
| $0$ | MODEL 400-426T-CRIMPING SLEEVE 3-4—Use with 10 \& 11 gauge wire and 14 \& 15 gauge barbed wire. Packed 10 per bag Weight—. $16 \mathrm{lb} . / \mathrm{bag}$. UPC Code 0-17051-20426-4 | 10 bags | $6^{1 / 4} \times 4^{3 / 4} \times 3^{1 / 4}$ | . 06 | 1.74 |
|  | MODEL 400-427T-CRIMPING SLEEVE 4-5-Used with 9 gauge wire and 12.5 \& 13.5 gauge barbed wire. Packed 10 per bag. Weight-. $21 \mathrm{lb} . / \mathrm{bag}$. UPC Code 0-17051-20427-1 | 10 bags | $61 / 4 \times 43 / 4 \times 31 / 4$ | . 06 | 2.28 |
| $8$ | MODEL 400-428-BOTTLED CRIMPING SLEEVES 2-3-Same specs as no. $400-425$ but packed 500 sleeves per plastic bottle for convenience. Weight-3.02 lbs./bottle. <br> UPC Code 0-17051-24428-4 | 8 bottles | $10^{1 / 8} \times{ }^{1 / 1 / 4} \times 5^{1 / 2}$ | . 30 | 25 |
|  | MODEL 400-430T-MULTI-GROOVE SPACER CLIP-Galvanized clip for poly \& wood spacers. Used with 3 -hole twisting tool (no. 300309) to attach spacer tightly to high-tensile w wire. Packed 25 per bag. Weight Weight-. $35 \mathrm{lb} . / \mathrm{b} a \mathrm{~g}$. UPC Code 0-17051-20430-1 | 10 bags | $71 / 4 \times 6^{1 / 2} \times 4^{1 / 2}$ | . 12 | 3.78 |
| $5$ | MODEL 500-560T—FWT 3-4 ELECTRIC TAP-Used to secure, by crimping, hot wire connections to existing wires. Packed 10 per bag. Weight- $.06 \mathrm{lb} / \mathrm{bag}$. <br> UPC Code 0-17051-20560-5 | 10 bags | $6^{1 / 4} \times 4^{3 / 4} \times 3^{1 / 4}$ | . 06 | . 75 |
|  | MODEL 500-540T-4" RIBBED TUBE INSULATOR-The patented ridge design enables the staple to lock without penetrating insulator profile. Made of non-conductive polyethylene. Packed 25 per bag. UPC Code 0-17051-20540-7 | 1 box | $71 / 4 \times 4 \times 4$ | . 07 | 1.80 |
|  | MODEL 500-541—WRAPAROUND INSULATOR—Use for tying off electric wires at end and gate posts. Made of non-conductive polyethylene with an aluminum insert for strength. Packed 10 per bag. UPC Code 0-17051-25541-9 | 10 bags | $21^{1 / 2} \times 8^{1 / 2} \times 5^{1 / 2}$ | . 58 | 14.40 |
|  | MODEL 500-542T—DOUBLE "U" INSULATOR—Use on end and corner posts when an inside connection is desired. Metal strip provides added strength. Ideal for use with high-tensile wire. Packed 25 per bag. UPC Code 0-17051-25542-6 | 10 bags | $15^{3 / 4} \times 12 \times 91 / 2$ | 1.04 | 22.38 |
|  | MODEL 500-546-50' INSULTUBE-Use for insulating hot feed wires to be strung overhead or underground to bring electricity to the fence Can also be cut to insulate live wires from neutral wires, and to enclose wires buried underground for crossing underneath gateways. 50 ' per roll. Weight- $1.32 \mathrm{lbs} . /$ roll. <br> UPC Code 0-17051-25546-4 | 10 rolls | $16 \times 16 \times 143 / 4$ | 2.19 | 15 |
|  | MODEL 500-551-50' INSULATED CABLE—For use above or below ground. Made of non-conductive polyethylene which is extruded around $12^{1} / 2$ gauge, $170,000 \mathrm{PSI}$, Class 3 galvanized wire. 50 per roll. Weight-2.34 lbs./roll. <br> UPC Code 0-17051-25551-8 | 10 rolls | $16 \times 16 \times 143 / 4$ | 2.19 | 24 |
|  | MODEL 500-552-200' INSULATED CABLE-Same specs as 500551. 200' per roll. Weight-9.66 lbs./roll. <br> UPC Code 0-17051-25552-5 | 3 rolls | $18^{1} / 2 \times 81 / 2 \times 10$ | . 91 | 30 |
|  | MODEL 600-100—HIGH-TENSILE FENCING PRODUCT \& INSTALLATION MANUAL-High-tensile fence construction written in laymen's terms. Contains various fence designs for both electric and non-electric installations. UPC Code 0-17051-26100-7 | 1 each | $8^{1 / 2} \times 11 \times 1 / 32$ | . 01 | . 10 |

## TIGHTENING THE WIRE

The electric system (hot wires) requires that the line post tube insulators and corner and end post wraparound insulators be put on the wires before affixing the in-line strainers. The tube insulators will slide down the fence line with ease and then are stapled to the line posts. FIGURE 13.


## FIGURE 11

Use to increase tension on fence. They should be located in the middle of each stretch.


Install in-line strainers FIGURE 11 and tighten the wires with the use of the strainer handle. The in-line strainers must be located near the middle of the fence line in order to achieve the same resistance factor in both directions. NOTE: Prior to tightening the in-line strainers, a tension spring should be installed on one of the wires (generally the second wire from the top) to indicate tension. FIGURE 12. Tighten the wires slightly.


One crimping sleeve should be left on electric wires before anchoring to allow for electrical hookups. FIGURE 14. An extra sleeve should also be left on one hot wire at a gateway for the underground hookup. As an optional method, a Fi-Shock Electric Fence Tap may be used instead of the

crimping sleeve.

Staples should lock into the rib on

the tube insulator so there will be no horizontal movement over time. Staples must be loose over non-electric wires in order to permit the wire to respond to expansion and contraction. FIGURE 15. After all the posts are stapled, return to the in-line strainers and tighten the wires to 250 pounds of tension or better (equals 2 to 3 inches of compression of the tension spring). Hand gauge the remaining wires to equal the tension of the wire with the attached spring.

To allow for posts to set in concrete, return to the in-line strainers in a few days and tighten slowly.

## DISPENSING THE WIRE

High carbon wire (high-tensile) is very strong and quite active. In order to properly contain the wire while working the fence line, a spinning jenny (dereeler) must be used. Unlike other types of fencing, you do not have to tie off at every corner. Merely, string the wire on the back side of the corner brace and then return the wire to the inside of your first line post and continue on. When pulling a non-electric wire around a corner, place a staple behind the wire over top of the holding staple to eliminate drag when bringing the wire to tension. With regard to electric wires, staple horizontally above and below the wraparound insulator. Never staple directly into the wraparound. Stop paying out wire every 165 feet ( 10 rods) and staple the wires from bottom to top. FIGURE 9.


NOTE: Staples should never be driven "home" except when securing brace wire and twitch stick. This allows for expansion and contraction of the wire throughout the entire fence line. Should you install hightensile Class 3 wire through drilled treated posts, regardless of the precautions taken, free standing moisture will likely settle and impair the expected life of the wire. U.S. Steel, in their original installation book referred to this method of wire placement as being acceptable, however, if you expect long life from your Class 3 wire, Fi-Shock, Inc. does not recommend placing wire through drilled treated posts.

## ANCHORING THE WIRE

Non-electric wires: Wrap wire around post and onto itself. Secure with two crimping sleeves. FIGURE 10. Electric wires: Same as non-electric but use a wraparound insulator. FIGURE 10.
Splicing: Unlike the placement of two crimping sleeves when the wire is looped around onto itself, a hightensile splice requires 3 crimping sleeves.

$\square$

# INSTALLATION TIPS FOR THE CONSTRUCTION OF ELECTRIC AND NON-ELECTRIC HIGH-TENSILE FENCES 

Your first step is to determine the type of high-tensile fence required, the fence design and whether to use an electric or a non-electric approach. A basic fence layout on paper will help you in establishing the post sizes, spacing, length of each run and type of brace assemblies. The fence designs listed in this manual should be helpful. Keep in mind though, your fence should be designed specifically for your particular containment needs.

WARNING-Wire, when over-stretched, may break and recoil causing serious injury. Caution is advised when working with any wire. Eye and hand protection should be worn when working with high-tensile wire.

## BRACING

When constructing your high-tensile fence with 6 wires or less, build a single brace at corners and ends. For an installation with 7 wires or more, a double brace is required for corners and ends.

## SINGLE BRACE

Drive or concrete the end post 48 inches into the ground.

Drive or concrete the first brace post 8 feet from the end post. FIGURE 1.


On the end post, drill a $3 / 8$ inch hole, 2 inches deep and 44 inches up on the surface facing the first brace post. FIGURE 2A.


The top horizontal is now ready to be slipped onto the 5 -inch brace pin in the end post.

Drive a $3 / 8$-inch x 10 -inch brace pin through the brace post into the top horizontal leaving 2 inches exposed. FIGURE 2C.

Drive a staple (keeper staple) at the
 bottom of the end post. FIGURE 3.


Wrap the brace wire (use the high-tensile wire you have for the fence) around the exposed brace pin at the top of the first brace post and diagonally to the keeper staple at the bottom of the end post. Repeat this until you have two complete and tight wraps. Loop the end around the brace pin where you started and staple both ends. FIGURE 4.

On the side opposite the fence wire insert a twitch stick 2 inches between the diagonal brace wires and twist forward toward you 8 to 10 times. FIGURE 5.

FIGURE 4


Secure twitch stick to the horizontal brace post with a piece of high-tensile wire 17 to 20 inches long. FIGURE 6.


When double bracing is required, repeat the single brace procedure except a 10 inch brace pin is required for the first brace post rather than the 5 inch.

## NO BRACE CORNER CONSTRUCTION

There are occasions where an H brace is not practical. When this occurs, consider installing a round corner. For specific instructions on this approach refer to FIGURE 6A.


## CONSTRUCTING THE FENCE

Start by driving or placing in concrete all end and corner posts in predetermined run. Keep in mind that an in-line strainer will pull 4,000 feet of high-tensile wire, however, for each friction point such as a corner, bend, dip or rise, deduct 500 feet of pull capability. Next, run out a single guide wire, which ultimately becomes the bottom wire and will assume a straight fence line. FIGURE 7. After tightening the guide wire, drive or place in concrete the remaining posts on all dips and rises. Line posts need not be more than $21 / 2$ feet in the ground. In most cases, they do not require concrete.


NOTE: Use 8-foot posts on ends, corners, turns and dips. All 8-foot posts must be placed 48 inches into the ground. When posts are not driven, concrete is required.

## END AND CORNER ASSEMBLIES

These require a double or single brace, whichever is applicable. FIGURE 8.


## FF-ShoGkinc.

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