



## **PREFORMED** LINE PRODUCTS

### **Section 19 – Distribution (Overhead): Wildlife Protection**

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# RAPTOR PROTECTOR™

## GENERAL RECOMMENDATIONS

The RAPTOR PROTECTOR is designed to provide protection from incidental avian contact with overhead distribution lines. It provides an economical means of reducing bird fatalities and line outages while being easily installed over single or double pin/or post tie top C, F, J and K neck insulators. For double pin insulators the RAPTOR PROTECTOR can accommodate 6.5" – 22" center to center distances.

The RAPTOR PROTECTOR is lightweight, offers little wind resistance and is easily and quickly installed by hand or by hot stick. The RAPTOR PROTECTOR will remain in its applied location and will not move along the conductor under Aeolian vibration or other conditions. This product comes with four Round Eye Lock Pins that are easily installed by hand or using a hot stick.

**Materials:** The RAPTOR PROTECTOR is manufactured from low density polyethylene (LLDPE) possessing excellent environmental stress crack resistance and is fully UV stabilized.

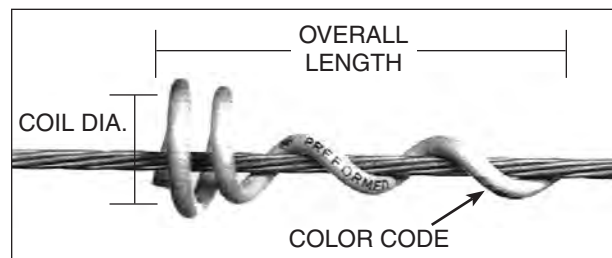


Catalog Number	Description	Overall Length	Color
RPC-0800	Raptor Cover-Up	80"	Black
RPC-0801	Raptor Cover-Up	80"	Gray
RPP-0840	Round Eye Lock Pin	N/A	Black

# BIRD-FLIGHT™ Diverter

## NOMENCLATURE

### PLASTIC BIRD FLIGHT DIVERTER



**Length:** Distance product covers the conductor.

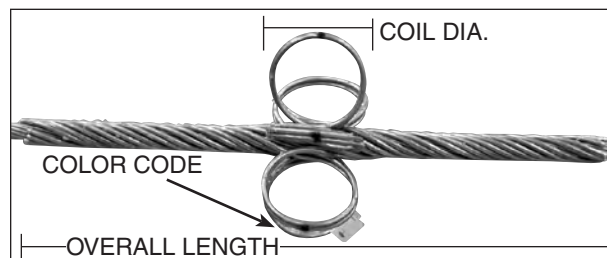
**Color Code:** Identifies conductor range, corresponding to tabular information on the following page.

**Color:** Yellow or Gray

**Material:** Outdoor grade PVC

**Coil Diameter:** Internal diameter of diverter coil

### ALUMINUM BIRD FLIGHT DIVERTER



**Length:** Distance product covers the conductor.

**Color Code:** Identifies conductor range, corresponding to tabular information on the following page.

**Color:** Silver

**Material:** Aluminum Alloy

**Coil Diameter:** Approximately 4"

## GENERAL RECOMMENDATIONS

The BIRD-FLIGHT Diverter is designed to make overhead lines and guyed structures visible to birds and provides an economical means of reducing the hazard to both lines and birds. For low and medium voltage construction, the BIRD-FLIGHT Diverter is applied to the phase conductors (bare or jacketed). For high voltages, it is used on the shield wire.

The BIRD-FLIGHT Diverter is lightweight, offers little wind resistance and is easily and quickly applied by hand or by hot stick. The positive grip on the conductor ensures that the Bird-Flight Diverter remains in the applied position and cannot move along the span under aeolian vibration or other conditions.

**Visibility:** The diverter section increases the visible profile of the cable or conductor to a degree necessary to ensure safety, but avoids an undesirably bulky outline.

**Materials:** The plastic BFD is manufactured from rigid .375" and .500" high impact polyvinyl chloride (PVC) possessing excellent chemical resistance and tensile strength properties. The BIRD-FLIGHT Diverter will retain good physical characteristics within a range of extreme temperatures. Aging tests confirm the material does not deteriorate in function or appearance from the effects of severe weather conditions. Industrial fumes and salt water cannot seriously degrade the properties of rigid PVC.

The Aluminum BFD is manufactured from a high strength, corrosive resistant aluminum alloy material. It is ideal for use on conductors operated at elevated temperatures.

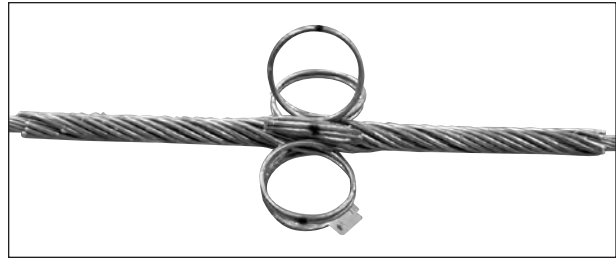
## APPLICATIONS

**Ensure the correct size BIRD-FLIGHT Diverter is used.** For a detailed installation description, refer to the application instructions. Hot stick application is fast and simple with standard equipment.

**Spacing:** For optimum results, spacing distances are generally recommended at 15' intervals depending upon local conditions. Since wind resistance is very limited, sufficient BIRD-FLIGHT Diverter can be used to ensure adequate visibility without creating stresses on the line. When marking adjacent spans, overall visibility is improved by staggering the application.



# BIRD-FLIGHT™ Diverters



**For use on:  
Bare and Jacketed Conductors & Strand**

Catalog Number	Material Color	Conductor Range (Inches)		Overall Length (Inches)	Diameter of Diverter Coil (Inches)	Diameter of PVC Rod (Inches)	Approximate Weight (Lbs)	Color Code
		Min	Max					
BFD-MS-3331	Yellow	0.175	0.249	7.00	2.25	0.375	0.090	Black
BFD-MS-3346	Gray							
BFD-MS-3155	Yellow	0.250	0.349	8.50	2.50	0.375	0.100	Blue
BFD-MS-2921	Gray							
BFD-MS-3164	Yellow	0.350	0.449	9.50	2.75	0.375	0.110	Brown
BFD-MS-3355	Gray							
BFD-MS-10022	Black							
BFD-MS-11135	Yellow			12.375	4.50	0.500	0.240	
BFD-MS-11060	Gray							
BFD-MS-11134	Black							
BFD-MS-3341	Yellow	0.450	0.599	11.00	3.00	0.375	0.140	Green
BFD-MS-3366	Gray							
BFD-MS-10023	Black							
BFD-MS-3344	Yellow	0.600	0.770	13.00	3.75	0.500	0.300	Purple
BFD-MS-3371	Gray							
BFD-MS-3345	Yellow	0.771	0.858	15.00	4.25	0.500	0.330	Red
BFD-MS-3376	Gray							
BFD-MS-3405	Yellow	0.859	0.942	16.50	4.75	0.500	0.360	Orange
BFD-MS-11699	Gray							
BFD-MS-11111	Yellow	0.971	1.121	15.50	4.25	0.438	0.420	Pink
BFD-MS-12290	Gray							
BFD-MS-10277	Black							
BFD-MS-11430	Yellow	1.122	1.306	16.25	4.38	0.438	0.450	Gray
BFD-MS-11110	Yellow	1.307	1.530	17.00	4.70	0.438	0.450	Black
BFD-MS-12351	Yellow	1.531	1.786	20.00	4.88	0.438	0.520	White
BFD-MS-11566	Yellow	1.787	2.100	23.00	5.25	0.438	0.600	Purple
BFD-MS-12603	Yellow	2.101	2.500	26.00	5.25	0.438	0.650	Orange
BFD-MS-11543	Aluminum	0.800	0.850	26.00	4.00	0.250	0.200	Pink
BFD-MS-12679	Aluminum	1.100	1.150	37.00	4.00	0.250	0.200	Purple
BFD-MS-12645	Aluminum	1.300	1.350	43.00	4.00	0.250	2.200	Red
BFD-MS-12687	Aluminum	1.565	1.635	54.00	4.00	0.250	2.500	Black

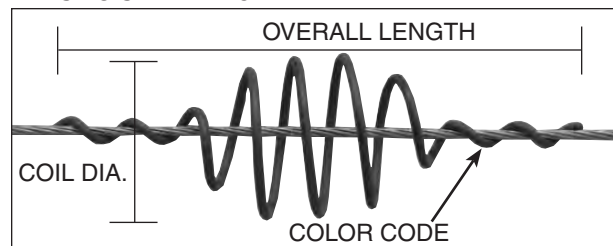
*Explanatory Notes:*

For field study results, consult Preformed Line Products.

# SWAN-FLIGHT™ Diverters

## NOMENCLATURE

### PLASTIC SWAN-FLIGHT DIVERTER



**Length:** Distance product covers the conductor.

**Color Code:** Identifies conductor range, corresponding to tabular information on the following page.

**Color:** Yellow or Gray

**Material:** Outdoor grade High Impact PVC

**Coil Diameter:** Outside diameter of diverter coil

## GENERAL RECOMMENDATIONS

The Preformed Line Products SWAN-FLIGHT Diverter is designed for use on conductor/strand to create greater visibility for avian flight paths on overhead lines and tower down guys. Offering little wind resistance, it reduces hazards to both lines and birds. For construction up to 230kV, the SWAN-FLIGHT Diverter can be applied to phase conductors (bare or jacketed). For EHV voltages, it is typically installed on the shield wire.

The SWAN-FLIGHT Diverter is lightweight, offers little wind resistance and is easily and quickly applied by hand or hot stick. The positive grip on the conductor ensures that the SWAN-FLIGHT Diverter remains in the applied location and cannot move along the span under Aeolian vibration or other conditions.

### Visibility:

The diverter section increases the visible profile of the cable or conductor to a degree necessary to ensure safety, but avoids an undesirably bulky outline.

### Materials:

The SWAN-FLIGHT Diverter (SFD) is manufactured from rigid .375" and .500" high impact polyvinyl chloride (PVC) possessing excellent chemical resistance and tensile strength properties. The SFD will retain good physical characteristics within range of extreme temperatures.

Aging tests confirm the material does not deteriorate in function or appearance from the effects of severe weather conditions. Industrial fumes and salt water cannot seriously degrade the properties of rigid PVC.

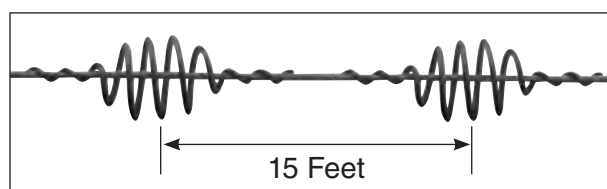
## APPLICATIONS

**Ensure the correct size SWAN-FLIGHT Diverter is used.**

For detailed installation description, refer to the application procedure. Hot stick application is fast and simple with standard equipment.

### Spacing:

For optimal results, spacing distances are generally recommended at 15' intervals depending upon local conditions. Since wind resistance is very limited, a sufficient quality of SWAN-FLIGHT Diverters can be used to ensure adequate visibility without creating stresses on the line. When marking adjacent spans, overall visibility is improved by the staggering application.



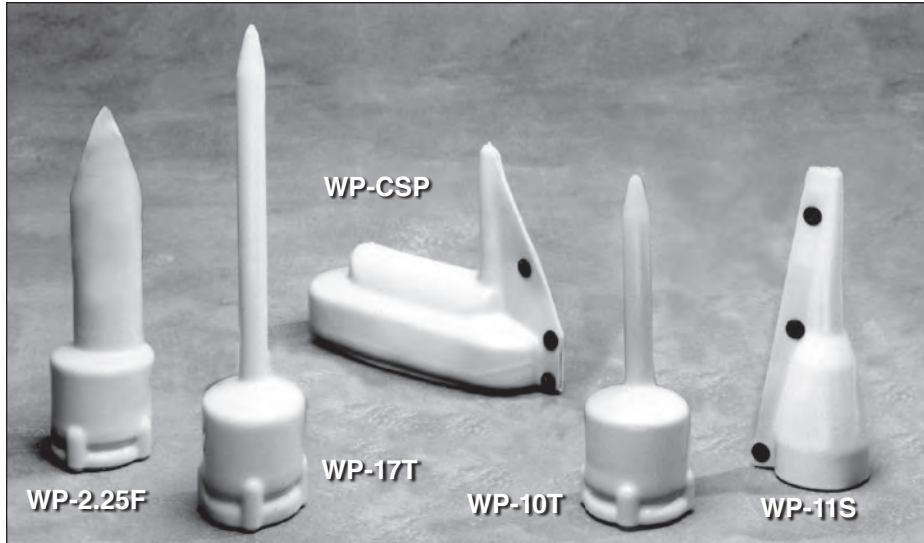
Catalog Number	Conductor Range (Inches)		Overall Length (Inches)	Diameter of Diverter Coil (Inches)	Diameter of PVC Rod (Inches)	Approximate Weight (Lbs)	Color Code
	Min	Max					
SFD-0445	0.175	0.249	20	7.0	0.375	0.40	Black
SFD-0635	0.250	0.349	23	7.0	0.375	0.46	Blue
SFD-0890	0.350	0.449	25	7.5	0.375	0.50	Brown
SFD-1140	0.450	0.599	35	8.0	0.375	0.70	Green
SFD-1520	0.600	0.770	38	8.0	0.500	1.40	Purple
SFD-1960	0.771	0.858	38	8.0	0.500	1.40	Red
SFD-2220	0.859	0.942	40	8.0	0.500	1.50	Orange
SFD-2460	0.943	1.121	40	8.0	0.500	1.50	Pink
SFD-2700	1.122	1.306	40	8.0	0.500	2.00	Gray
SFD-3035	1.307	1.530	46	8.0	0.500	2.00	Black

**NOTE:** Add suffix -Y to the catalog number for yellow color (i.e.: SFD-1140-Y).



# Wildlife Protectors

## NOMENCLATURE



## CONSTRUCTION

All of the wildlife protectors are made from a light gray, high voltage, plastisol compound that is a minimum of 100 mils thick. This material contains ultraviolet stabilizers and fungicides and has a dielectric strength of 240 V/mil.

## GENERAL RECOMMENDATIONS

These devices are designed to reduce the number of outages experienced on the utility's distribution system by insulating transformer bushings, lighting arrestors, capacitors and switching equipment from incidental contact by animals. This is achieved by covering energized components sufficiently so that an animal can not contact the component and ground potential simultaneously.

**INTENDED USE:** Plastisol guards are to be secured to the bushings of transformers or similar equipment such that the energized components are covered for a reasonable distance or an insulating medium separates energized components from grounded components in areas open to animal contact.

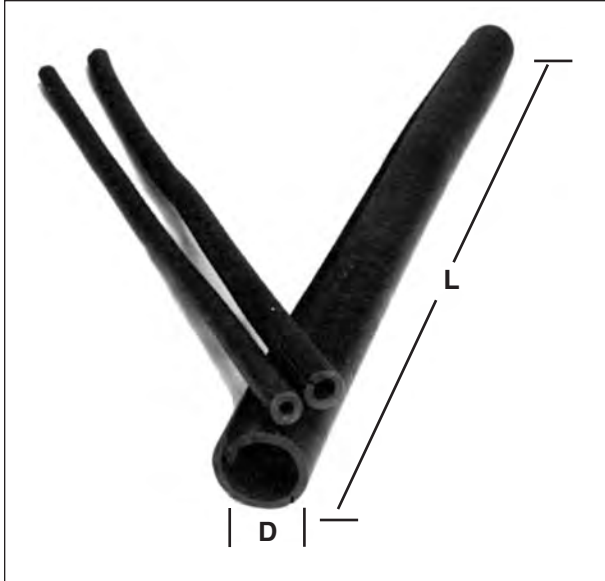
Catalog Number	Carton Quantity	Height (Inches)	Width (Inches)	Length (Inches)	Tap Wire Opening (Inches)	Description
WP-10T	25	11.75	3.75	3.75	up to 0.75	Single bushing transformer and capacitor. Will cover a maximum of 7.5" of tap wire. Locating tabs hold the guard on the first skirt of the insulator.
WP-17T	25	17.00	3.75	3.75	up to 0.75	Single bushing transformer and capacitor. Will cover a maximum of 12.5" of tap wire. Locking tabs hold the guard on the first skirt of the insulator.
WP-11S	25	11.00	3.50	3.50	0.40	Existing tap retrofit. Apply through slit edge and hold guard in place with the fasteners provided.
WP-CSP	25	8.75	3.50	12.25	0.40	Completely Self-Protected (CSP) transformers. Designed as retrofit. Designed to protect both primary bushing and lighting arrestor.
WP-2.25F(2)	25	12.75	3.75	3.75	cut as needed	Single bushing transformer. Covers 2.25" OD current limiting fuse bolted to bushing. Bottom of the double dipped tip indicates point of install for fuse. Locking tabs hold guard on first skirt of the insulator.

### EXPLANATORY NOTES:

1. Designed for use with current limiting fuse.

# Protector Tubing

## NOMENCLATURE



## GENERAL RECOMMENDATIONS

Protector tubing protects energized lines from faults due to incidental contact caused by various types of wildlife. The durable EPDM® tubing is a minimum of 125 mils thick with a dielectric strength of 500 V/mil and has excellent resistance to ozone and petroleum based solvents. The tubing is not intended to insulate energized lines from human contact.

Catalog Number	Inside Diameter (in)	Length (ft)	Carton Quantity
	D	L	
PT-216	0.216	8	150
PT-315	0.315	8	100
PT-464	0.464	8	65
PT-665	0.664	8	35
PT-847	0.847	8	25
PT-1084	1.084	8	15
PT-1360	1.360	8	10

### EXPLANATORY NOTES:

1. Slit version available, add -S to the end of the catalog number.
2. Continuous 50 foot rolls available, consult PLP on price and delivery.



# POLE PLUG



The POLE PLUG is designed to close existing holes in steel utility poles or other steel equipment in order to reduce or eliminate whistling due to the wind and insect intrusion. The plug provides an economical means of reducing the incidents of insect infestations. This reduces possible injury to lineman and loss of productivity.

- Fully UV stabilized
- Resistant to environmental stress cracking

### Application:

- Installs in seconds
- Can be installed with standard hot stick tools if required
- Positive snap in lock

### Features:

- One piece design
- Lightweight
- Eliminate/reduce pole whistling
- Eliminate/reduce insect infestation
- Covers hole dimensions from 9/16" – 1-1/4"
- Long service life without material deterioration

Catalog Number	Hole Size	Color
PP-0625B	9/16" and 5/8"	Black
PP-0750B	11/16" and 3/4"	Black
PP-0813B	13/16"	Black
PP-0875B	7/8" and 15/16"	Black
PP-1000B	1" and 1-1/16"	Black
PP-1125B	1-1/8"	Black
PP-1250B	1-3/16" and 1-1/4"	Black

For a gray pole plug, change the "B" to a "G".