



balmoral[™]
engineering

PARTNERING WITH UTILITIES TO PREVENT POWER LINE STRIKES

Product Catalogue

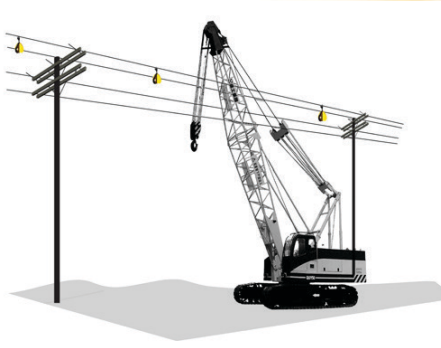
Revision 14



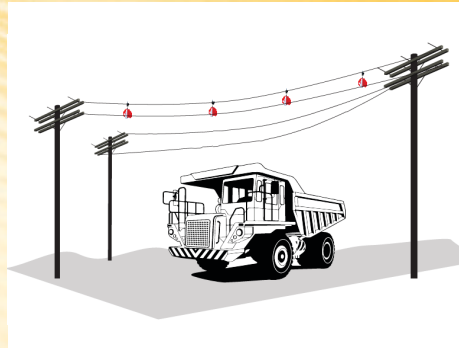


Powerline Markers & Bird Diverters

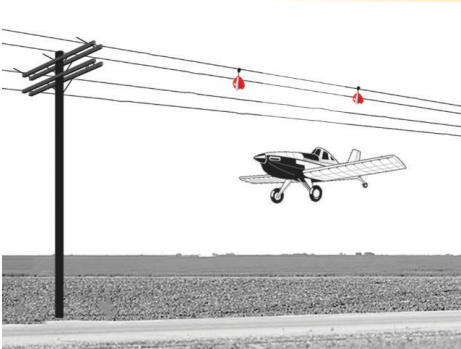
Preventing Collisions & Contact with Powerlines



Construction



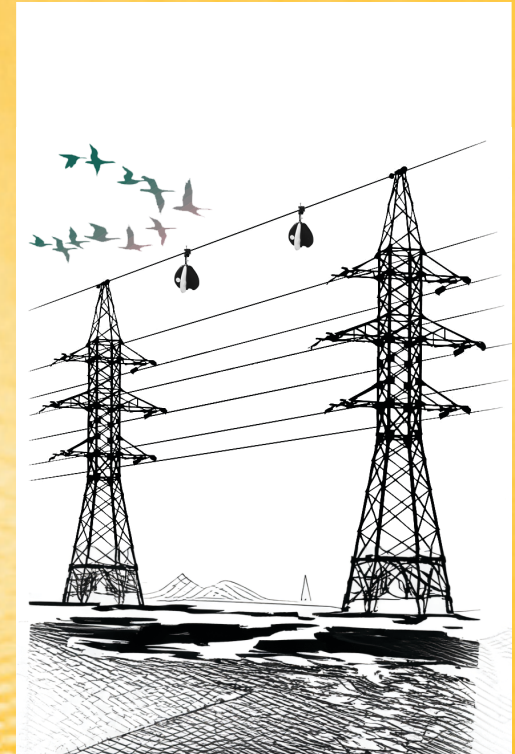
Mining



Aerial Application



Farm Machinery



Bird Strike



Powerline Markers & Bird Diverters

ROTAMARKA[™]



ROTAMARKA[™] Power Line Markers Make Difficult To See Power Lines Highly Visible

Have undergone a battery of tests at leading Universities & independent laboratories



Years of field testing and used by major utilities & asset owners throughout the world



Certified as visible from over 4400 feet or 1.3km. FAA requires visibility from 4000 feet and AS 3891 requires visibility from 1km.



Unique combination of 3D shape, contrasting colours and rotating design creates class leading high impact visualisation of Power Lines



Increased spacing over similar products on the market reduces installation cost and total cost of ownership



Flexible installation options including from the ground with telescopic hot stick, from bucket truck with shotgun stick, from helicopter or drone



Powerline Markers & Bird Diverters

BIRDFLAPPA[™]



BIRDFLAPPA[™] Bird Diverters Prevent birds from colliding with Power Lines

Zero line load or deflection on
installation or uninstallation using
standard lineman tools



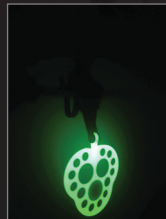
Most durable dynamic bird flight
diverter in the market



Simple hinge mechanism for flapper
component couples with marine grade
materials



Photoluminescence flapper visible to
birds in low light conditions



Flame retardant



Duration tested to 114mph wind
speeds



Stronger spring prevents migration
on power line. Laboratory based slip
tests prove better performance than
alternative products on the market



Powerline Markers & Bird Diverters

ROTA**MARKA**[™]



1. Helicopter Installation



2. Drone Installation



3. Bucket Truck Installation



4. Ground Install with Stick

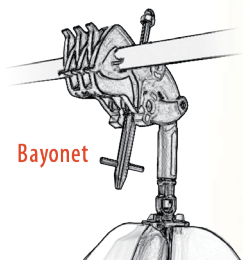


Powerline Markers & Bird Diverters

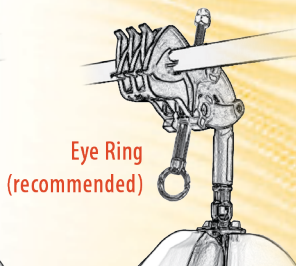
ROTAMARKA[™]



Choose Eye Ring or Bayonet



Bayonet



Eye Ring
(recommended)

ROTAMARKA Drive Tool

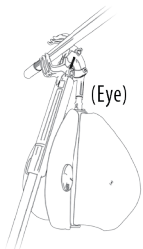
WMDT | ~42 x 22mm SS
(works with Eye or Bayonet)



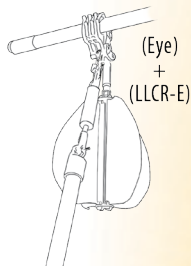
ROTAMARKA
Install/uninstall tool
- universal - Eye Ring only

LLCR-E | ~300 x 55

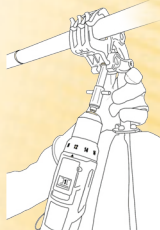
Installation Options



(Eye)



(Eye)
+
(LLCR-E)



(Eye)
or
(Bayonet)
+
(WMDT)



Shotgun Stick

Telescopic Stick

Driver

Screwdriver

Spring Clamp Installation Tool

LLCR-SC



Install tool for:

BIRDFLAPPA[™]
FLAGMARKA[™]





Powerline Markers & Bird Diverters

★ Recommended Products

Part Number Legend

Example: WM - CS - B - 1H - RW

A B C D E

A - Product type: BD/WM (Bird Diverter/Warning Marker)

B - Line attachment: CS/SC (Screw Clamp/Spring Clamp)

C - Hot Stick attachment: B/E (Bayonet or Eye Ring)

D - Style of warning device: 1H/1J/1K
(Rotamarka, Flag, Flappa)

E - Colour: RW/O/BY/BW/GID
(Red/white, Orange, Black/Yellow, Black/white, Glow in Dark)

★ WM-CS-E-1H-BW

WM-CS-B-1H-BW

ROTAMARKA[™]

★ WM-CS-E-1H-RW

WM-CS-B-1H-RW

WM-CS-E-1H-BY

WM-CS-B-1H-BY

FLAGMARKA[™]

WM-SC-IJ-O

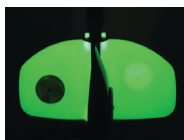
BIRDFLAPPA[™]

BD-SC-1K0-GID V0 without trigger

BD-SC-1K2-GID V2 with trigger

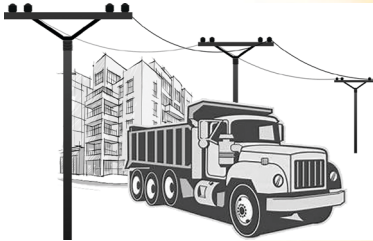


ROTAMARKA
Glow in Dark Option





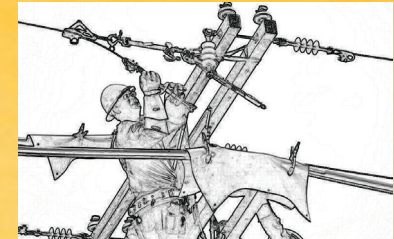
LINE GUARDS & HOSE



Construction



Tree Protection



Utility Maintenance

Class 2 Polyethylene Line Guards Make Power Lines Visible And Provide A Barrier Against Brush Contact

Lion Tails™ dual layer safety feature (Black on inside, yellow on outside)



Tiger Tails™ unique yellow/black striped safety feature



Snap fit, male to female connections



ASTM F712 Certified Class 2 15KV



Excellent UV resistance, extremely light weight & easy to handle, yet durable



Different size and length options available



LINE GUARDS & HOSE



LION TAILS[™]

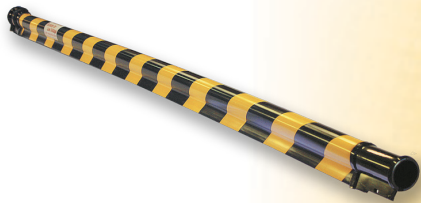


Lion Tails[™]

DB45B | 1.77" ID, 6.6ft long, Yellow outer/ Black inner
ASTM F712 CL2, PE



TIGER TAILS[™]



Tiger Tails[™]

DB35A HV | 1.36" ID, 8.2ft long, Yellow/ Black stripes
ASTM F712 CL2 PE



PANTHER TAILS[™]



Panther Tails[™]

TPP15 | 0.6" ID, 197ft roll, Black outer, Yellow inner
Electricity tested ASTM F712 CL2



Panther Tails[™]

TPP15-Kit | Installation tool kit for TPP15 Panther Tails[™]



Panther Tails[™]

TPP15-TL | Installation tool for TPP15 Panther Tails[™]

**Class 2
15KV**

***Both phases covered | Other length options available on request**



Perch Deterrents & Wildlife Protection

BIRDBLOCKA

BIRDBLOCKA

Prevents Birds From Perching On Power Lines



Light weight, reduced line loads



Simple design, durable product



Only bird deterrent on market to focus on the power line



Easy to install by hand



Prevent damage to conductors from birds and their excrement



Prevent outages from larger birds bridging phases

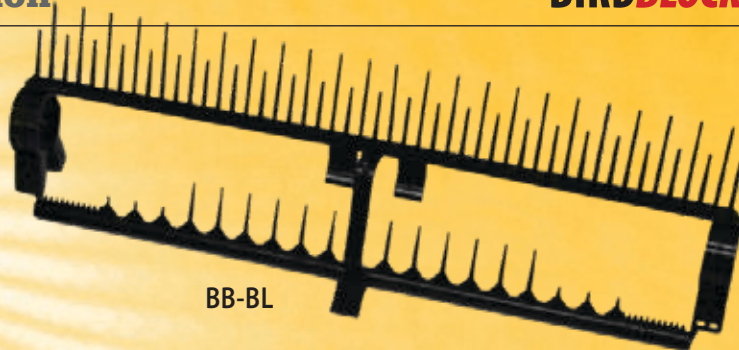


Perch Deterrents & Wildlife Protection

BIRDBLOCKA

BIRDBLOCKA

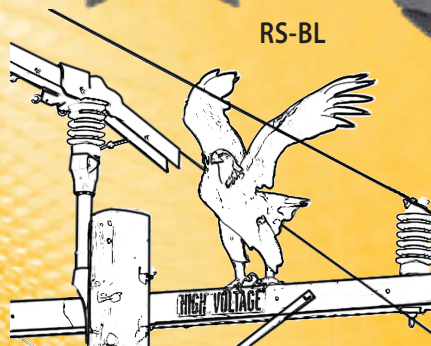
- Designed to be installed on Power Lines anywhere along the span or near the cross arm to prevent birds from landing or settling on the lines.
 - Suits most cable sizes.
 - Will keep vertical orientation and face upwards.
 - UV stabilised with good electrical insulation properties.
 - Rubber stoppers used on either side of the Bird Blocker to fix in place on the line.
 - Can install multiple Bird Blockers "in series" along the line.
- Where this is done, use rubber stoppers for every 10 Bird Blockers installed.



BB-BL



RS-BL



Item No.	Size	Base Material	Base Colour	Suits Cable Size
BB-BL	20" x 6"	HDPE	Black	5mmØ–240mm ²
RS-BL	1" x 1"	EPDM	Black	5mmØ–240mm ²

Parameter	Results (BB-B)
Withstand voltage	15KV for 1 minute
Heat resistance	No cracking or other damage at 60 degrees C
Cold resistance	No cracking or other damage at 20 degrees C
Crushing test	30N for 1 minute



balmoralTM
engineering

balmoralengineering.com (Sydney, Australia)