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Revision	1

Product Data Sheet – ROTAMARKA

Preventing Power Line Strikes from Construction & Agriculture Equipment, Birds and Low Flying Aircraft.

Key Features:

- **AS 3891 Compliant:** for low flying aircraft
- **High Visibility:** Contrasting colours, prismatic reflectors, 3D form and element of movement make this the best performing powerline marker available today.
- **Durable Construction:** Made from materials resistant to UV rays, extreme temperatures, and harsh weather conditions.
- **"The Swiss Army Knife" of power line markers:** Will provide class leading visual warning of power lines and wires in most situations including avian species, farm/agriculture, aviation, construction and mining sites.
- **Now installable on Guy Wires**
- **Multiple installation options:** Including hot stick and drone.



Suitable for powerline warning for aviation & agricultural applications



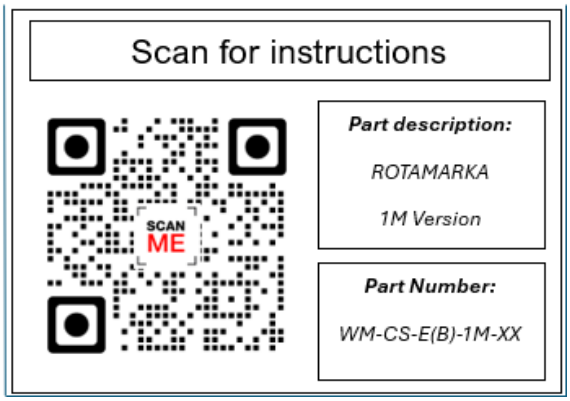
Suitable for powerline warning for birds



Suitable for powerline hazard warning



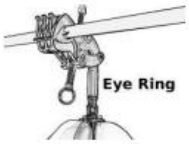
Figure 1 Drone Installable (contact us for more information)

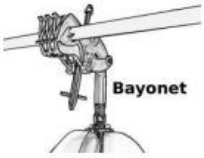


For more product information please visit our website: balmoralengineering.com

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Part No. Table (A)







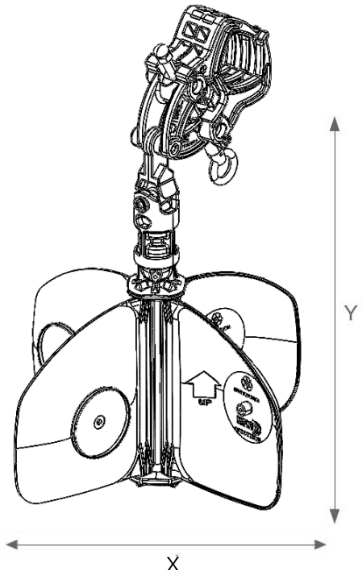


	Part No.	Description
1	WM-CS-E-1M-RW	ROTAMARKA™ Screw Clamp Eye Ring Red White
2	WM-CS-E-1M-BW	ROTAMARKA™ Screw Clamp Eye Ring Black White
3	WM-CS-E-1M-BY	ROTAMARKA™ Screw Clamp Eye Ring Black Yellow
4	WM-CS-E-1M-BGID	ROTAMARKA™ Screw Clamp Eye Ring Black Glow in Dark
5	WM-CS-E-1M-RGID	ROTAMARKA™ Screw Clamp Eye Ring Red Glow in Dark
6	WM-CS-B-1M-RW	ROTAMARKA™ Screw Clamp Bayonet Red White
7	WM-CS-B-1M-BW	ROTAMARKA™ Screw Clamp Bayonet Black White
8	WM-CS-B-1M-BY	ROTAMARKA™ Screw Clamp Bayonet Black Yellow
9	WM-CS-B-1M-BGID	ROTAMARKA™ Screw Clamp Bayonet Black Glow in Dark

Dimensions Table (B)

Y	X	Clamp Closes To (A)*	Clamp Opens To (B)*	Weight
12″ 309mm	13″ 335mm	5/64″ 2mm	2″ 50mm	30oz 880g

X = The Fins rotate diameter
Y = Drop from conductor when installed as depicted adjacent



*Suitability of the conductor are subject to the engineering requirements of the asset owner
Note: Any dimensions or weights figures are estimates only.

Materials Table (C)

Clamp, Body & Fins	UV Resistance Nylon 6
Soft jaw	TPE
Bearings	Stainless Steel
Pins & Bushes	Brass
Threaded Shaft	Stainless Steel
Lock Nuts	Brass + Stainless Steel
Reflectors	Acrylic

Spacing

The general recommendation is to space the devices 30-100ft or 10-30 metres apart or at a minimum of 1-2 Markers evenly spaced between towers or poles. However, please refer to our ROTAMARKA™ Instruction Sheet for more detailed information. This recommendation is subject to the requirements of the asset owner and dependent on environmental conditions.

Ratings Table (D)

1	**Recommended tightening torque**	2.9ft·lb[(b)] 4Nm[(b)]	2	**Max. projected area of the unit in a single plane**	95inches^2 61,180mm^2
3	**RPM** At wind speed of 11mph/18kph At wind speed of 22mph/36kph At wind speed of 67mph/108kph	118[(c)] 222[(c)] 814[(c)]	4	**Max. horizontal visible area of phosphorescent element surface area** (WM-CS-E-1M-BGID)	64inches^2 41,324 mm^2
5	**Coefficient of drag**	1.02[(c)]	6	**Max. horizontal visible area of reflective element surface area**	4.4inches^2 2,827mm^2
7	**Line load (per unit)** At wind speed of 0mph/0kph At wind speed of 11mph/18kph At wind speed of 22mph/36kph At wind speed of 67mph/108kph	1.94 lb or 8.63N (880g) [(d)] 1.95 lb or 8.68N (885g) [(d)] 2.21 lb or 9.41N (960g) [(d)] 6.42 lb or 28.56N (2912g) [(d)]	8	**Max. installation Guy Wire angle (to horizontal)**	45°
9	**Withstand voltage test** AS 1931.1-1996, AS 2225-1994	Flash over occurred at an equivalent of 173kV Ø-Ø[(e)]	10	AS 3891.1:2021 Clause 4.2 AS 3891.2 2018 Clause 2.2 and Clause 2.3.1 (d)	Compliant[(h)]
11	**Corona inception test** IEC 61284-1997	Occurred at an equivalent of 178.4kV Ø-Ø	12	**Testing of clamp assembly on 247°F/120°C heated rod for 1h**	No adverse functional effect on unit
13	**Corona extinction test** IEC 61284-1997	Occurred at an equivalent of 162.8kV Ø-Ø	14	**Testing of clamp assembly to -31°F/-35°c**	No adverse functional effect on unit
15	**Radio interference voltage (RIV) test** IEC 61284-1997, IEEE 1656	166µV at 174.2kV Ø-Ø 100µV at 116.2kV Ø-Ø 77.6µV at 43.5kV Ø-Ø	16	**UV aging test of all colour Fins, Clamps, and other plastic parts material 1000hours** ISO 4892-2/3, ASTM D 638, ISO 4582	No visual signs of damage

17	**Wind Tunnel testing at a maximum of 67mph/108kph in accordance with standardised testing protocols**	No adverse functional effect on unit[f]	18	**Ozone resistance of clamp and fin materials test specimen 1000 hours**	No visual signs of damage
19	**Snow and ice testing**	No adverse functional effect on unit, approx. 1.04oz or 40g additional load[g]	20	**Slip test (Max load when slippage occurred)** IEC 61897-2020 test method	78.2 lb[i] 347.8N[i]
21	**Corrosion test on metal components** AS 1247-2004 (ISO 10289-1999)	Brass = 7 Stainless Steel = 9-10	22	**Michelsons contrast** (device with black and white fins)	≈0.994

(a) Results obtained from material data sheet and may vary depending on supplier.
(b) Results obtained at a leading Australian University design assessment report.
(c) Results obtained at a leading Australian University using standardised indoor lab conditions.
(d) The Line load is inclusive of the device weight; it's calculated based on the given Coefficient of Drag and the maximum projected area of the device. The actual value may vary depending on the state of the device at different wind speeds.
(e) Results obtained from related tests on ROTAMARKA™ "Eye Ring" product version. Results may vary on "Bayonet" product version.
(f) Results obtained from the device performance conducted in a leading Australian University Wind Tunnel Test lab.
(g) Testing performed in Hokkaido, Japan. Load inclusive of snow/ice build-up on device fins per unit.
(h) The ROTAMARKA™ product design is compliant with the general requirements of the standard. This excludes the vibration and fire resistance tests.
(i) Results obtained from standardised indoor lab tests performed on Ø21.6mm OD ASCR conductor.

The data herein is an indication of product capabilities in known predetermined lab conditions and actual outdoor environments may vary.
Where stated, "unit" refers to a single ROTAMARKA™ device.

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