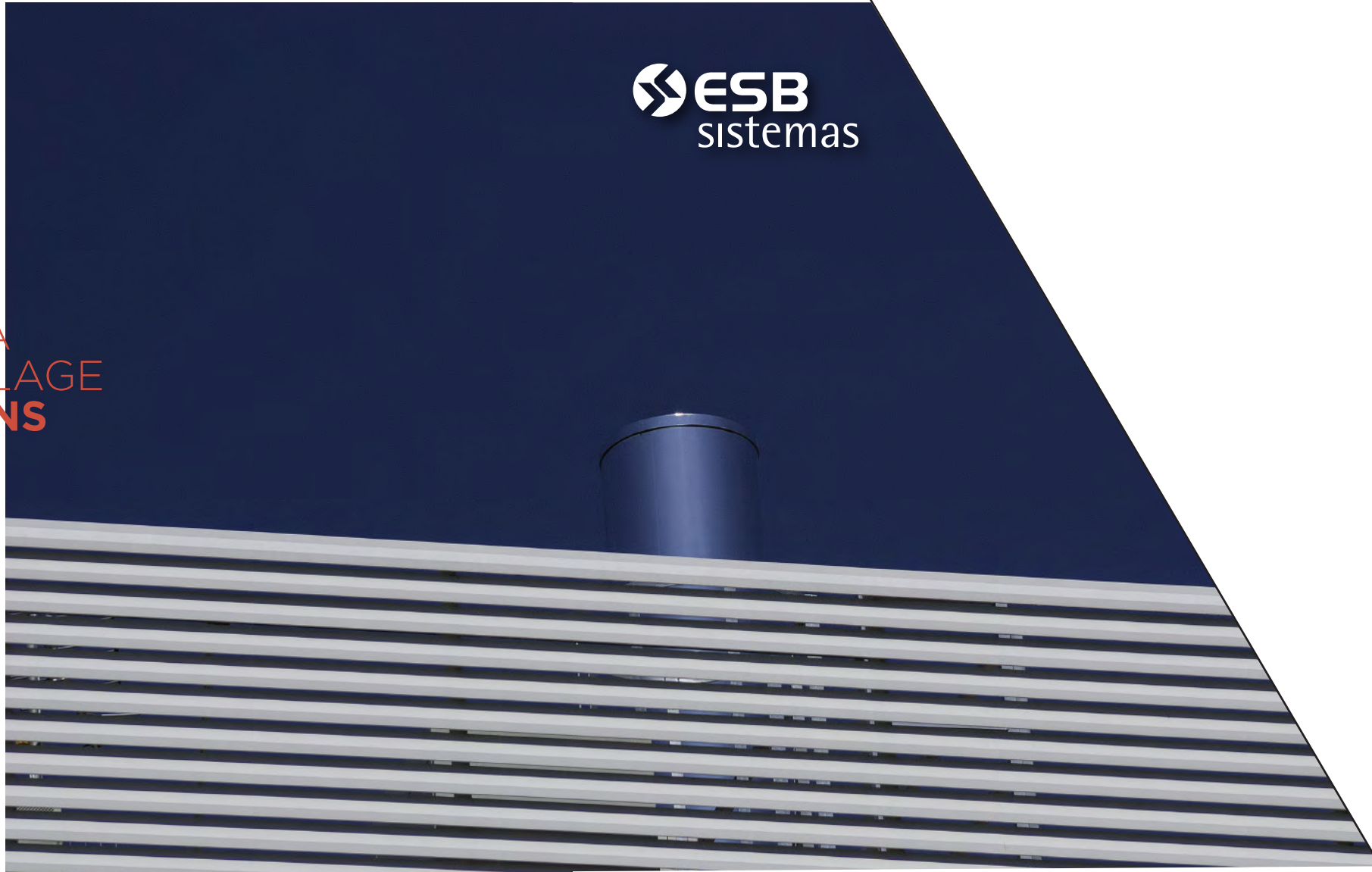


ANTENNA
CAMOUFLAGE
SOLUTIONS

ECOSITE CATALOGUE

ANTENNA
CAMOUFLAGE
SOLUTIONS



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**COOPERATION
LONG-TERM APPROACH
ENVIRONMENTAL FRIENDLY**

“Any sufficiently advanced technology
is indistinguishable from **magic**”

Arthur C. Clarke



1

**ESB SISTEMAS
AND
KATHREIN**

ESB SISTEMAS has been working with the German firm Kathrein Werke KG for more than 30 years. Our partnership lies in the design, production and marketing of camouflaged antennas.

Kathrein is a global leading manufacturer of antennas for mobile communications, which allows us to provide low visual impact antennas with the most innovative technology on the market.

The ESB SISTEMAS ECOSITE antennas consist of multiple antennas inside a single radome with a common internal structure.

The objective of the system, called ECOSITE, is to optimize space, where in a single location can be served by multiple operators to reduce CAPEX or for massive MIMO performance greatly reducing the visual impact. With these solutions, ESB SISTEMAS offers all of its clients a wide range of different configurations.



“ Antenna System with very low visual impact “

REDUCE VISUAL IMPACT OF **ANTENNAS**

Over the last 25 years the mobile communication industry underwent a massive growth, leading various mobile operators to improve their infrastructure and at the same time visually affecting urban areas with antennas and other components (masts, radio links, passive elements, RRH, etc.) of high visual impact.

The increasing number of high visual impact antennas led to general rejection of the citizens.

The rejection makes it more difficult than ever for the mobile operators to find a site for their antennas and offer proper connections to its customers.

So, why not respecting the architecture of the cities and using an all in one camouflaged antenna system that is in line with its environment.



ECOSITE **ANTENNAS**

The ESB SISTEMAS ECOSITE antennas are a concept of camouflaged KATHREIN panel antennas covered in just one radome with a common internal structure. The aim of the ECOSITE system is to optimize the site with a minimal work impact, avoiding social rejection and reducing the visual impact.

ESB SISTEMAS in cooperation with KATHREIN offers a wide range of solutions of camouflaged antennas.

Main Features:

- Mono-, bi-, Tri-sector, arrangements featuring KATHREIN antennas.
- Four slim diameter possibilities (330 mm, 450 mm, 550 mm, 640 mm).
- Individual azimuth adjustment per sector +/- 10°.
- Complete solutions for different turnkey scenarios
- 700 | 800 | 900 | 1500 | 1800 | 1900 | 2100 | 2600 technologies.
- Single | Dual | Tri | Quad | Penta | Hexa | Hepta Band solutions.

2

PODRUCT

DESCRIPTION

(TYPE)



MONOSECTOR



TRISECTOR



ECOSITE UP&DOWN

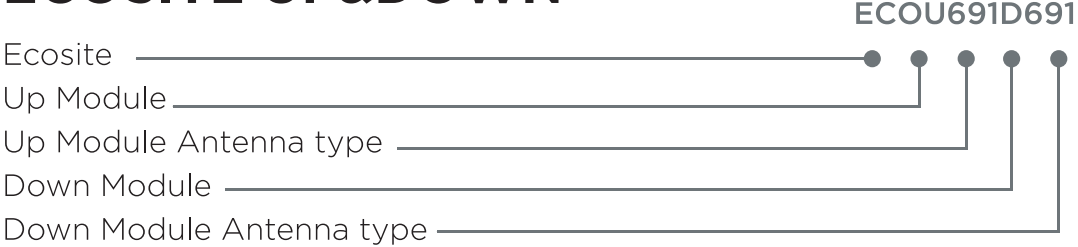
MONOSECTOR



TRISECTOR



ECOSITE UP&DOWN



KATHREIN

3 ECOSITE MONOSECTOR

- Ecosite Monosector features:
- Slim diameter.
 - Easy to install modular design.
 - Low weight.
 - 360° orientation.
 - Service area for MHA/MUX...1m.
 - Folding Hinge System available.
 - Ex-factory complete solution.

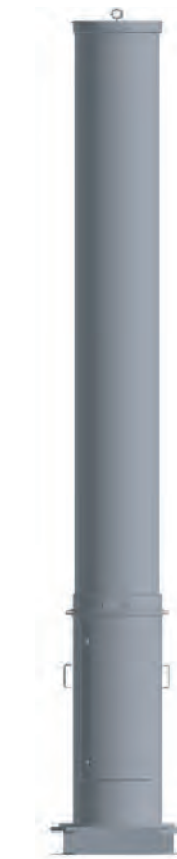
We have developed 2 different kinds of solutions depending on the Kathrein antennas used:

Antennas Dual/Tri/Quad-Band: 330mm.
(Platform 260mm y 300mm Kathrein)

Antennas Tri/Quad/Penta/Hexa/Hepta/Band /FlexRet: 450mm.
(Platform 377mm Kathrein)



“ Antenna System with very low visual impact “



330



450



ECOSITE MONOSECTOR

MS 330mm
PLATFORM

1x LB/1x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOMS664	80010664	790-960 / 1710-2690	1500 / 320	4 x 7 - 16
ECOMS665v01	80010665V01	790-960 / 1710-2690	2060 / 320	4 x 7 - 16
ECOMS666v01	80010666V01	790-960 / 1710-2690	2710 / 320	4 x 7 - 16

1x ULB/2x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOMS290v02	80010290V02	790-960 / 1710-2170 / 1710-2170	1500 / 320	6 x 7 - 16
ECOMS291v02	80010291V02	790-960 / 1710-2170 / 1710-2170	2060 / 320	6 x 7 - 16
ECOMS692v01	80010692V01	698-960 / 1710-2690 / 1710-2690	2710 / 320	6 x 7 - 16

1x LB/3x HB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOMS684	80010684	790-960 / 1710-1880 / 1920-2180 / 2490-2690	1500 / 320	8 x 7 - 16
ECOMS685v01	80010685V01	790-960 / 1710-1880 / 1920-2180 / 2490-2690	2060 / 320	8 x 7 - 16
ECOMS686v01	80010686v01	790-960 / 1710-1880 / 1920-2180 / 2490-2690	2710 / 320	8 x 7 - 16



ECOSITE MONOSECTOR

MS 450mm
PLATFORM

1x ULB/2x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOMS864	80010864	698-960 / 1710-2690 / 1710-2690	1500 / 450	6 x 4.3 - 10
ECOMS865	80010865	698-960 / 1710-2690 / 1710-2690	2000 / 450	6 x 4.3 - 10
ECOMS866	80010866	698-960 / 1710-2690 / 1710-2690	2600 / 450	6 x 4.3 - 10

2x ULB/2x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOMS867L	80011867	698-862 / 880-960 / 1710-2690 / 1427-2690	1500 / 450	8 x 4.3 - 10
ECOMS868L	80011868	698-862 / 880-960 / 1710-2690 / 1427-2690	2000 / 450	8 x 4.3 - 10
ECOMS869	80010869	698-862 / 880-960/x2 1710-2690	2600 / 450	8 x 4.3 - 10

1x ULB/3x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOMS872				

1x ULB/4x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOMS875	80010875	698-960 /2X 1695-2180/2X 2490-2690	2000 / 450	10 x 7 - 16
ECOMS891	80010891	698-960/4X 1695-2690	2000 / 450	10 x 4.3 - 10
ECOMS892	80010892	698-960/4X 1695-2690	2600 / 450	10 x 4.3 - 10

2x ULB/4x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOMS898L	80011898	698-862 /880-960/3X 1695-2690/1427-2690	2000 / 450	12 x 4.3 - 10
ECOMS899	80020899	698-862 / 880-960/4X 1695-2690	2600 / 450	12 x 4.3 - 10

2x ULB/1xL/4x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOMS877	80011877	698-862 /880-960/2X 1695-2180/1427-1518/2X 2490-2690	2000 / 450	14 x 4.3 - 10
ECOMS878	80011878	698-862 /880-960/2X 1695-2180/1427-1518/2X 2490-2690	2600 / 450	14 x 4.3 - 10

PASSION
TO
CONNECT



4

ECOSITE

TRISECTOR

Ecosite Trisector features:

By integrating Kathrein antennas into the same cylindrical enclosure we get an armonic and low visual impact.

We have developed 2 different kind of Trisectors depending on its diameter:

- Antennas Du/tri/Quad-band: 550mm.
(Platform 300mm Kathrein)
- Antennas Tri/Quad/Penta/Hexa/Band/Hepta with FlexRet: 640mm.
(Platform 377mm Kathrein)



“ Antenna System with very low visual impact “



550



640



ECOSITE TRISECTOR

TS 550mm
PLATFORM

2x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECO2UBv18	80020622	2x 1710-2690	1780 / 550	12 x 4.3 - 10

1x LB/1x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECODB664v18	80010664	790-960 / 1710-2690	1780 / 550	12 x 7 - 16
ECODB665v18	80010665v01	790-960 / 1710-2690	2370 / 550	12 x 7 - 16
ECODB666v18	80010666v01	790-960 / 1710-2690	3000 / 550	12 x 7 - 16

1x ULB/2x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOTB290v18	80010290v02	790-960/1710-2170/1710-2170	1780 / 550	18 x 7 - 16
ECOTB691v18	80010691v01	698-960/1710-2690/1710-2690	2370 / 550	18 x 7 - 16
ECOTB692v18	80010692v01	698-960/1710-2690/1710-2690	3000 / 550	18 x 7 - 16

2x LB/1x HB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOTB697v18	80010697	790-862/880-960/1710-2180	1780 / 550	18 x 7 - 16
ECOTB698v18	80010698	790-862/880-960/1710-2180	2370 / 550	18 x 7 - 16
ECOTB699v18	80010699	790-862/880-960/1710-2180	3000 / 550	18 x 7 - 16

1x LB/3x HB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOQB685v18	80010685v01	790-960/1710-1880/1920-2170/2490-2690	2370 / 550	24 x 7 - 16
ECOQB686v18	80010686v01	790-960/1710-1880/1920-2170/2490-2690	3000 / 550	24 x 7 - 16





ECOSITE TRISECTOR

TS 640mm
PLATFORM

1x ULB/2x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOTB864	80010864	698-960/1710-2690/1710-2690	1750 / 640	18 x 7 - 16
ECOTB865	80010865	698-960/1710-2690/1710-2690	2350 / 640	18 x 7 - 16
ECOTB866	80010866	698-960/1710-2690/1710-2690	2830 / 640	18 x 7 - 16

2x ULB/2x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOQB867L	80011867	698-862/880-960/1710-2690/1427-2690	1800 / 640	24 x 4.3 - 10
ECOQB868L	80011868	698-862/880-960/1710-2690/1427-2690	2350 / 640	24 x 4.3 - 10
ECOQB869	80010869	698-862/880-960/1710-2690/1710-2690	3020 / 640	24 x 7 - 16

1x ULB/3x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOQB872	80020872	698-960/1710-2690/1710-2690/1710-2690	3020 / 640	24 x 4.3 - 10

1x ULB/4x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOPB875	80010875	698-960 /2X 1695-2180/2X 2490-2690	2350 / 640	30 x 7 - 16
ECOPB891	80010891	698-960 /4X 1710-2690	2350 / 640	30 x 4.3 - 10
ECOPB892	80020892	698-960/4X 1710-2690	3020 / 640	30 x 4.3 - 10

2x ULB/4x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOHB898L	80011898	698-862/880-960/3x 1695-2690/1427-2690	2350 / 640	36 x 4.3 - 10
ECOHB899	80020899	698-862/880-960/4x 1695-2690	3020 / 640	36 x 4.3 - 10

2x ULB/1xL/4x UHB

Type	Kathrein antenna	Frequency Range (Mhz)	Length/ Diameter (mm)	Inputs
ECOHP877	80011877	698-862/880-960/2x 1695-2180/1427-1518/2x 2490-2690	2350 / 640	42 x 4.3 - 10
ECOHP878	80011878	698-862/880-960/2x 1695-2180/1427-1518/2x 2490-2690	3020 / 640	42 x 4.3 - 10



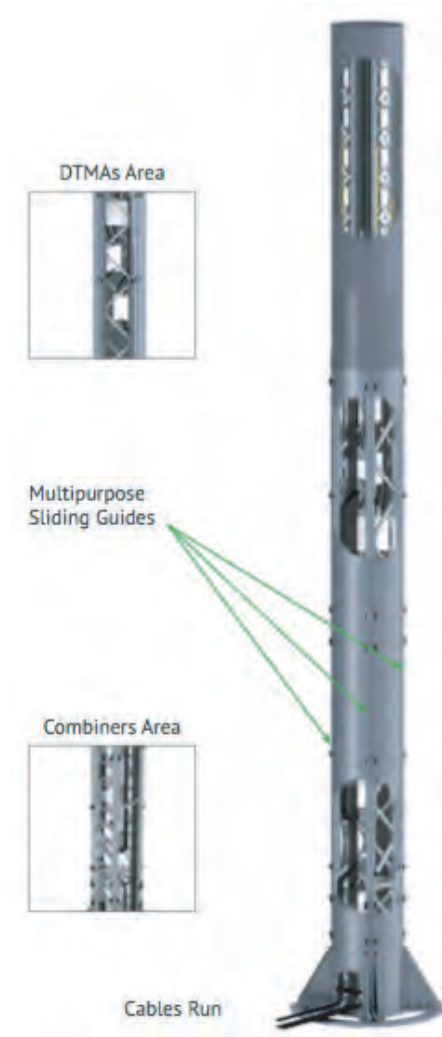
**CAMOUFLAGED
ANTENNAS**
WITH
THE MINIMAL
VISUAL
IMPACT

5 SOLUTIONS

Apart of offering different Antenna solutions, we are pleased to offer different solutions to match any installation requirement to ease the setting of the complete site.

Our ECOSITE solutions consist on:

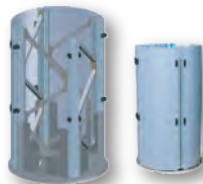
- Modular Mast Poles
- Anchoring
- Security Systems
- Accesories
- Extras



5.1 MODULAR MAST POLES

Aluminium Standard Bases

REFERENCE	Diameter/mm	Height/mm	Weight/Kg	Material
ECOBS 55/100	550	1000	50	6082T6
ECOBS 64/100	640	1000	60	6082T6



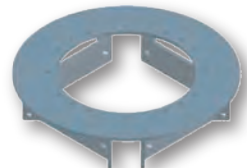
Aluminium Standard Modules

REFERENCE	Diameter/mm	Height/mm	Weight/Kg	Material
ECOMP 55/100	550	1000	25	6082T6
ECOMP 55/200	550	2000	50	6082T6
ECOMP 64/100	640	1000	30	6082T6
ECOMP 64/200	640	2000	60	6082T6



Mast Antenna Interface

REFERENCE	Diameter/mm	Height/mm	Weight/Kg	Material
ECO CAP 55	550	115	8	6082T6
ECO CAP 64	640	115	10	6082T6

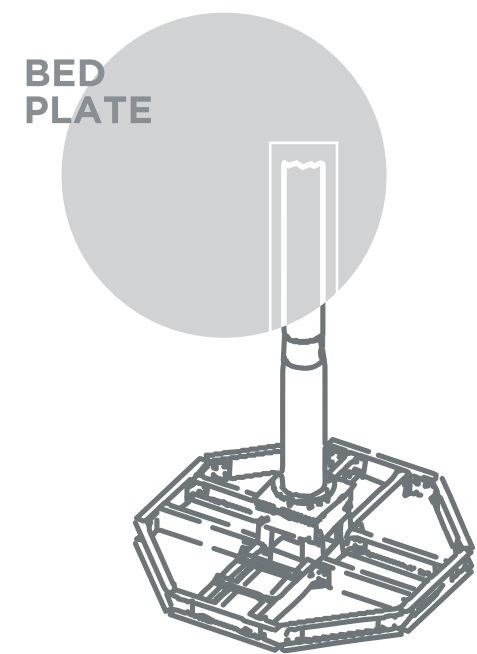


Modular Mast Poles: Manufactured of high resistance Aluminium, they offer a high resistance and low weight solution in order to reach up to 5m length (Antenna apart). Due to the low weight of every module, the system can be installed by a staff of 2 people.

The Diameter remains at the same size as the antenna platform so we offer 550 and 640mm mast pole solutions.

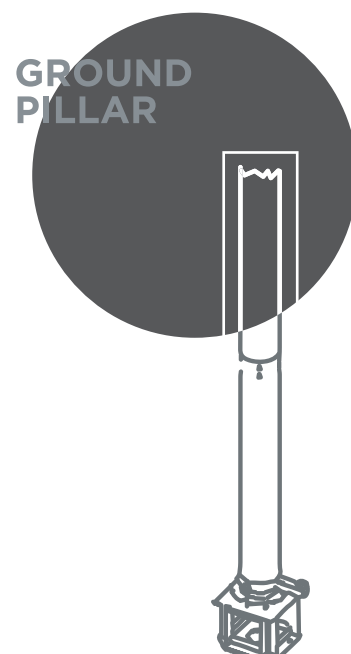
5.2 ANCHORING

In order to anchor the system, we offer 3 solutions:



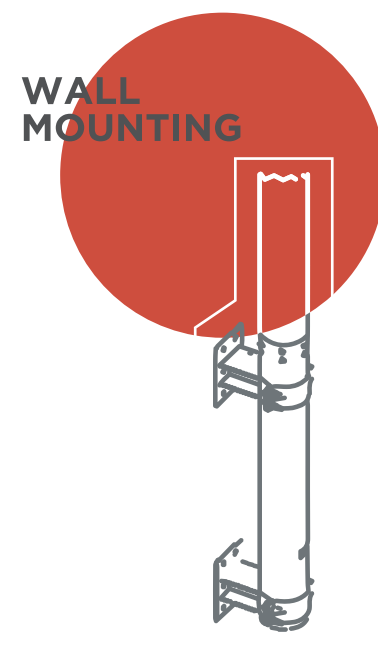
Bed Plate

3 different size solutions



Ground Pillar.

To be used on very small spaces



Wall Mounting

Making the most of an existing side-wall to add strength



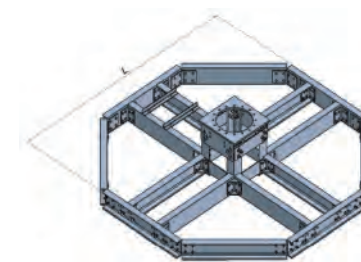
3 different sizes depending on the length and weight:

ECOBPS (2580x2580x500mm)

ECOBPM (3350x3350x500mm)

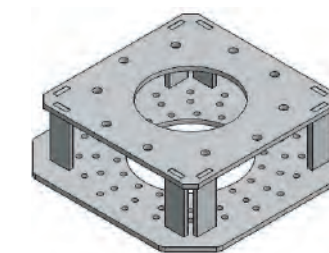
ECOBPL (3850x3850x500mm)

- Galvanised Steel Modular solution
- Possibility to add counterweights
- Suitable for 550 & 640 platforms
- Easy to install (approx. 1 hour.)



Adapted solution for 550 and 640mm

Specific for reduced space sites.



Additional support for ground Pillar

Strengths the solution in case of a side wall.

Adjustable solution in length.

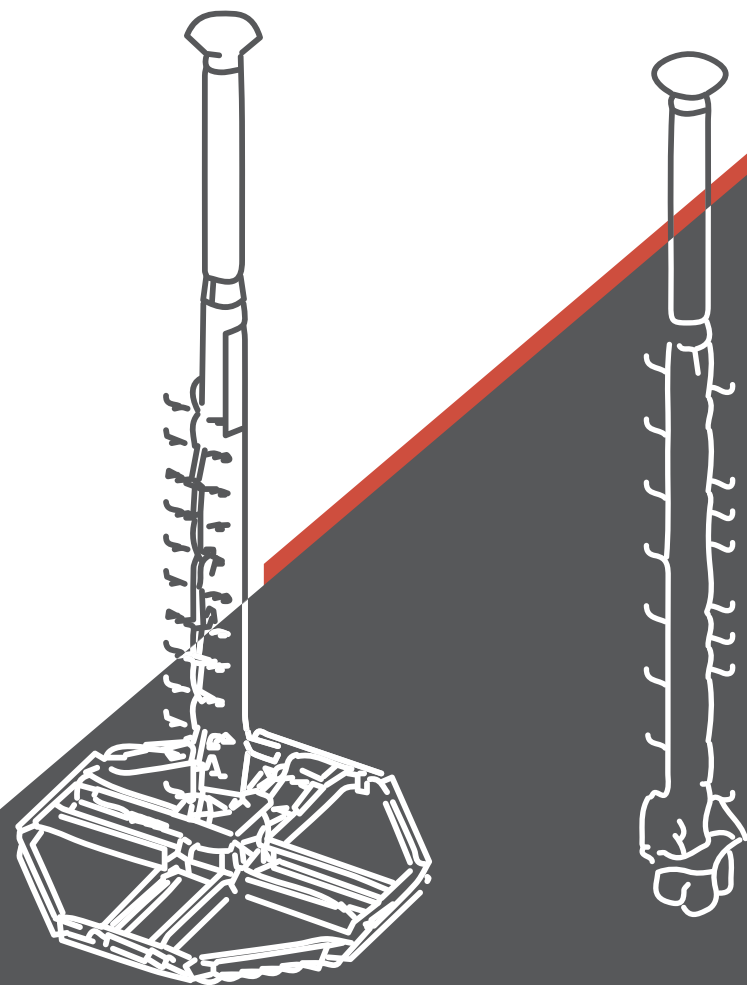


TECHNOLOGY
AND
INNOVATION

5.3 SECURITY SYSTEM

Security Systems: 2 solutions are offered in order to maximise the Security for the installers on the site:

- Detachable Security Ladder.
- Detachable side paths with life rope.



GUARANTEED RESULTS

Attachable Security ladder to climb around the mast pole. Depending on the length several configurations are available.

ECOHANGER ítem is needed to attach the ladder on the mast pole guide.

Game system is a security option to climb around the mast pole with detachable path which are placed around the mast pole. It is recommended to use 3x ECOPATE per 1m of mast pole.



5.5 EXTRAS



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