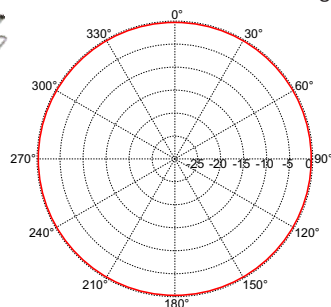


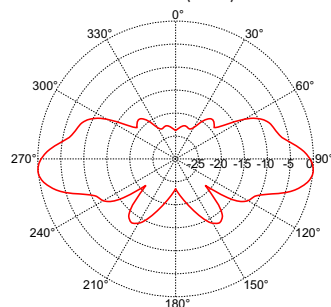
RADIATION PATTERNS

The assembly configurations depend on the application, as follows:

- Omnidirectional configuration: all elements must be orthogonal to each other (90°).

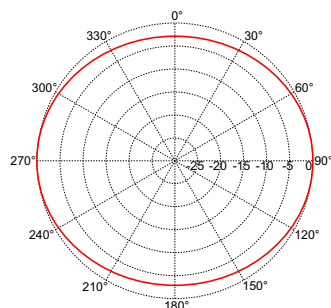
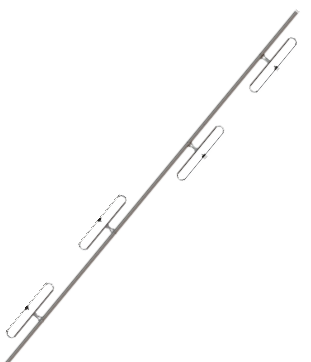


Omnidirectional horizontal polarization (H Plane)

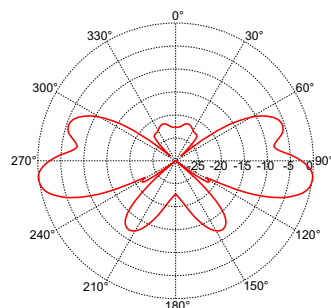


Omnidirectional vertical polarization (E Plane)

- Bidirectional configuration: 2 consecutive elements to one side and the other 2 elements to the other side (180°).

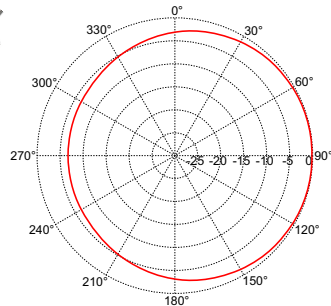
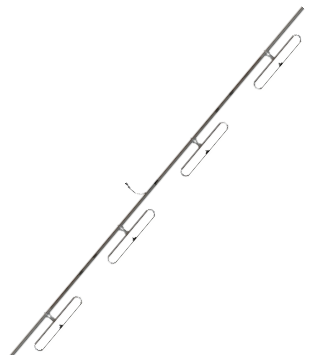


Bidirectional horizontal polarization (H Plane)

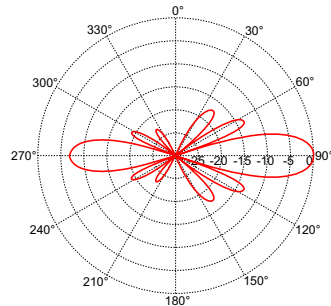


Bidirectional vertical polarization (E Plane)

- Offset configuration: all 4 elements must be aligned in the same direction.



Offset horizontal polarization (H Plane)



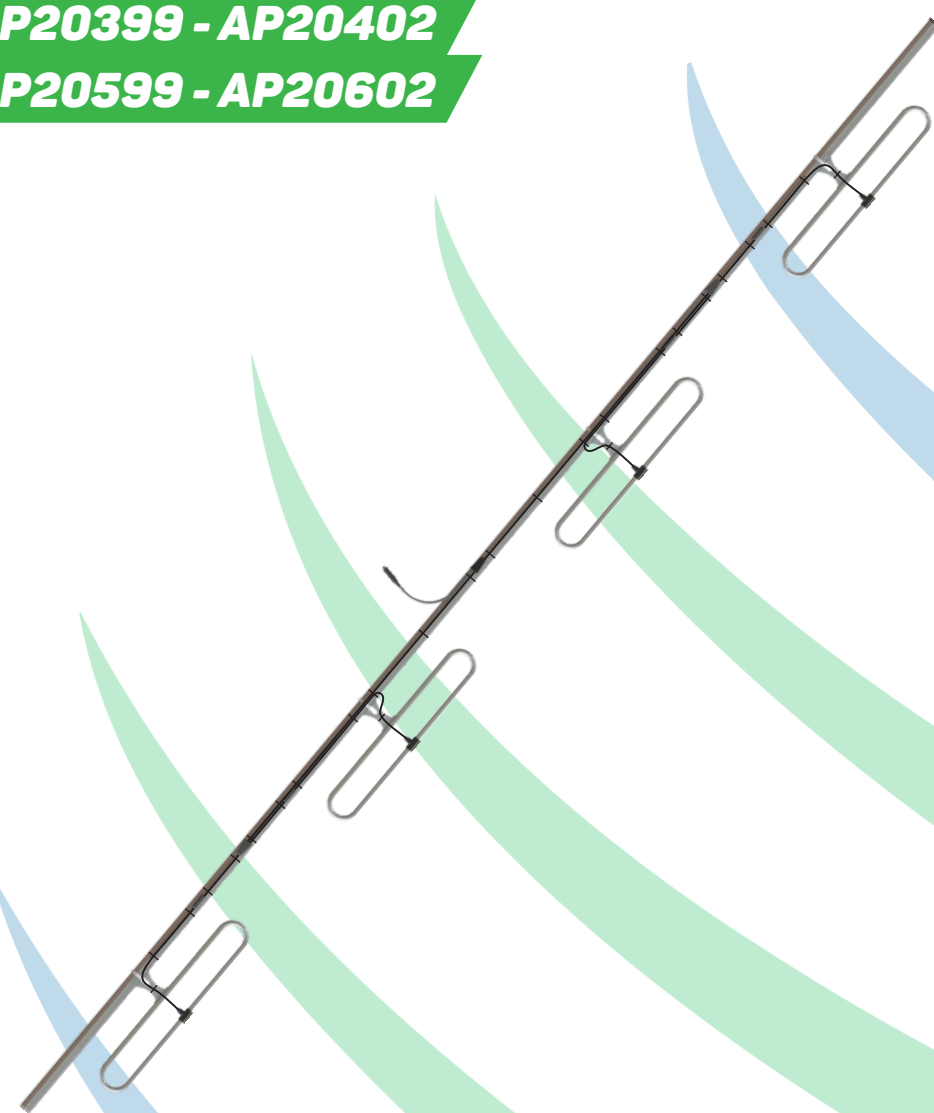
Offset vertical polarization (E Plane)

VHF COLLINEAR BASE ANTENNA

AP20299 - AP20302

AP20399 - AP20402

AP20599 - AP20602



steelbras[®]
soluções em antenas

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WWW.STEELBRAS.COM.BR



07/07/2026

These are base antennas operating in the VHF band, collinear type with folded dipoles. Made of aluminum, anti-UV treated polymer and coaxial cable. Their radiation pattern has a low main lobe angle, providing excellent signal coverage and repeater station performance.

Available in the following versions:

Frequency	Products	Female UHF Connectors		
			Female N	Male N
148 - 156 MHz	Dipole + Boom + Angle bracket	AP20299	AP20399	AP20599
	Dipoles only ¹	AP20309	AP20409	AP20609
155 - 174 MHz	Dipole + Boom + Angle bracket	AP20302	AP20402	AP20602
	Dipoles only	AP20312	AP20412	AP20612

ELECTRICAL SPECIFICATIONS

IMPEDANCE	50 Ω
VSWR	$\leq 1,5:1$
MAXIMUM POWER	350 W
CONNECTOR	FEMALE UHF / FEMALE N / MALE N
GROUNDING	DC GROUND (DC SHORT-CIRCUIT) 8,65
OMNIDIRECTIONAL GAIN	dBi
BIDIRECTIONAL GAIN	8,00 dBi
OFFSET GAIN	11,00 dBi
OMNIDIRECTIONAL VERTICAL HALF-POWER BEAMWIDTH	19,4°
OMNIDIRECTIONAL HORIZONTAL HALF-POWER BEAMWIDTH	-
BIDIRECTIONAL VERTICAL HALF-POWER BEAMWIDTH	16,7°
BIDIRECTIONAL HORIZONTAL HALF-POWER BEAMWIDTH	136,8°
OFFSET VERTICAL HALF-POWER BEAMWIDTH	15,9°
OFFSET HORIZONTAL HALF-POWER BEAMWIDTH	170,8°
OMNIDIRECTIONAL VERTICAL SIDE LOBE LEVEL	-13,2 dB
BIDIRECTIONAL VERTICAL SIDE LOBE LEVEL	-5,5 dB
OFFSET VERTICAL SIDE LOBE LEVEL	-7,1 dB

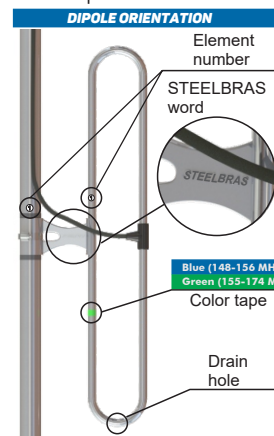
MECHANICAL SPECIFICATIONS

BOOM DIAMETER	50,8 mm
BOOM LENGTH	6000 mm
ELEMENT DIAMETER MAIN	19,05 mm
MATERIAL	ALUMINUM
WEIGHT	15 Kg 4,5 Kg (Dipoles Only)
WIND EXPOSURE AREA	0,49 m ²
SURVIVAL WIND	220 km/h
OPERATING WIND	100 km/h
ELEMENT SPACING (CENTER TO CENTER)	1505 mm

¹Steelbras Antenas reserves the right to make technical changes to the data in its datasheets without prior notice.

²This antenna does not require ANATEL Certification and Approval, under Act No. 7280, of 26 September 2020.

Mount the elements on the boom as shown in the illustration alongside, following the marking and logical number sequence (bottom to top, number "1" at the bottom and "4" at the top). The green tapes on the dipoles must face down, and the word "STEELBRAS" (raised lettering) must also be in the position shown in the "Dipole orientation" figure. NOTE: to keep the radiation patterns and gains as described in this document, the elements must be fastened in the correct order, orientation and position according to the markings on the boom. Secure the coaxial cables connecting the elements with good-quality insulating tape. Protect the connection with self-fusing tape to prevent leaks and ensure better performance.



Suggested accessories:

AP18180 - Antenna mount with adjustable tower clamp.

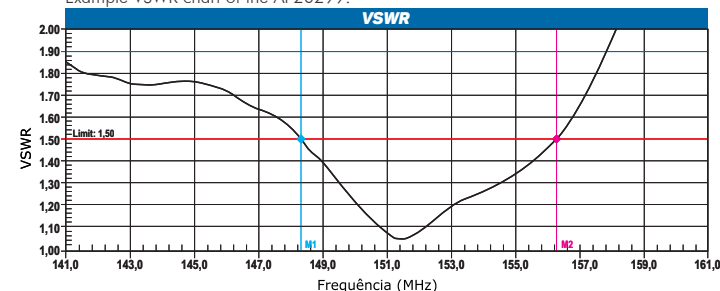
AP16952 - Straight female N x female surge protector with flange.

AP16953 - Straight female N x female surge protector without flange.

AP16951 - Grounding kit for RG213 cable.

AP17105 - VHF power divider 1:2 134 to 174 MHz.

Example VSWR chart of the AP20299.



Example VSWR chart of the AP20402.

