

PROGETTO DELLA CENTRALE SOLARE
"ENERGIA DELL'OLIO DI VILLASOR"
da 53,99 MWp a Villasor (SU)



D-13
PROGETTO DEFINITIVO

Scheda tecnica tracker



Proponente
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Investitore agricolo superintensivo
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Progettazione oliveto superintensivo
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01	● 2024	rev	descrizione	formato	elaborazione	controllo	approvazione
		00	Prima consegna	A4	Rolando Roberto	Giselle Roberto	Rolando Roberto
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SOLAR TRACKING

Type of tracking system: horizontal single axis tracking system with back-tracking.

Tilt 0°.

Azimuth 0°.

Rotation angle $\pm 55^\circ$.

Maximum tracking error $\pm 2^\circ$.

MECHANICAL SPECIFICATIONS

2 x 14 PV-modules in landscape configuration.

Dimensions [m] 15,21 x 4,66 x 4,24 (h Max).

Minimum height over ground at maximum tilt angle: 0,4 m.

Foundation type: 3 directly driven foundation posts.

Photovoltaic area 62,8 m².

Length of PV area 15,11 m.

All movement steel parts and foundation posts will be Hot Dip Galvanized according to ISO 1461:2009, other steel parts will be galvanized according to environmental conditions of the site to have a design lifetime of 25 years.

The tracker can be installed by two workers using standard tools and without mechanical advices for moving the single components. No welding, cutting are planned on site during installation phase.

No mechanical transmission components between two trackers: the tracker is completely adaptable to geotechnical condition of site and available land area.

Center of gravity of the moving part of the structure aligned with rotation axis.

CONTROL BOARD

The control board is equipped with 10 outputs to control 10 motors (electric linear actuators). A single control board can thus drive 10 structures, for a photovoltaic energy capacity of about 119.0 kWp (425 Wp - bifacial PV-modules).

Control system based on astronomical clock; auto-configuring, no sensor required; real-time remote communication and control available.

Backtracking system suited to the individual tracker conditions.

Anemometer for high-wind alarm and self-protection system (1 per subfield).

Control board ac single phase feeding.

GPS system integrated automatically acquires the site position, the date and the time. RS232 interface with Over-voltage protection 120 A – 0.2 J. 20 simultaneous channels.

Communication protocol ModBus on Wireless - RS485 cabled option available.

N° 20 input for free-voltage contacts for the connection to the linear actuator limit (2 inputs for each actuator).

Over-voltage protection, 40 A – 400 W – waveform 10/1000 µs.

Electrical insulation 890 V.

ELECTRICAL SPECIFICATIONS

Max. peak power per tracker 11.9 kW DC (1x28 PV-modules strings - 425 Wp).

Driven gear: 1 AC electrical linear actuator.

Power supply voltage: 240 V single phase 60 Hz.

IP Code: IP55.

Control system timed to minimize wear of the linear actuator.

Power consumption for the linear actuator: less than 10 kWh/year per row.

OPERATING ENVIRONMENT CONDITIONS

Operating temperature $-10^{\circ}\text{C} \div +50^{\circ}\text{C}$.

Max. operating altitude < 2000 m asl.

Natural cooling without external air exchange.

INSTALLATION TOLERANCES

Land Grading: 3° (Optionally up to $\pm 8.5^{\circ}$) North/South – No limitation East/West.

Foundation Installation – Height ± 20 mm.

Foundation Installation – North/South ± 20 mm.

Foundation Installation – East/West ± 20 mm.

Foundation Installation – Inclination 2° .

Foundation Installation – Twist 5° .

Punctual soil nonuniformity tolerance – ± 100 mm.

TRJ – LIST OF COMPONENTS (one PV tracker configuration)

n° 1 central column for electrical actuator complete with motor control board, plate, strike, washers, electric linear actuator complete of limit switch.

n° 2 external columns.

All columns are completed of post-heads anchoring of horizontal primary tubular and fixing accessories.

n° 26 fixing profiles of photovoltaic modules to the horizontal primary tubular and complete with fixing accessories (the support profiles will be custom designed, based on the PV module selection).

n° 4 square primary tubular.

MAINTENANCE

Electric linear actuators require no maintenance or lubrication.

End-of-day self-diagnostics signaled through change-over contact and buzzer.

Extremely simple land maintenance thanks to the absence of mechanical transmission components between tracker rows.

OTHER CHARACTERISTICS

Compatible with Italian Machinery Directive 2006/42/EC.

CE listed.

All tracking control system components are TÜV SÜD certified.

Easy installation, commissioning and maintenance that require no special equipment; instructions guide the installer through all phases; interface software supplied as standard, allows system diagnostics.

Patents PD2012A000174, PCT/IB2013/054425.