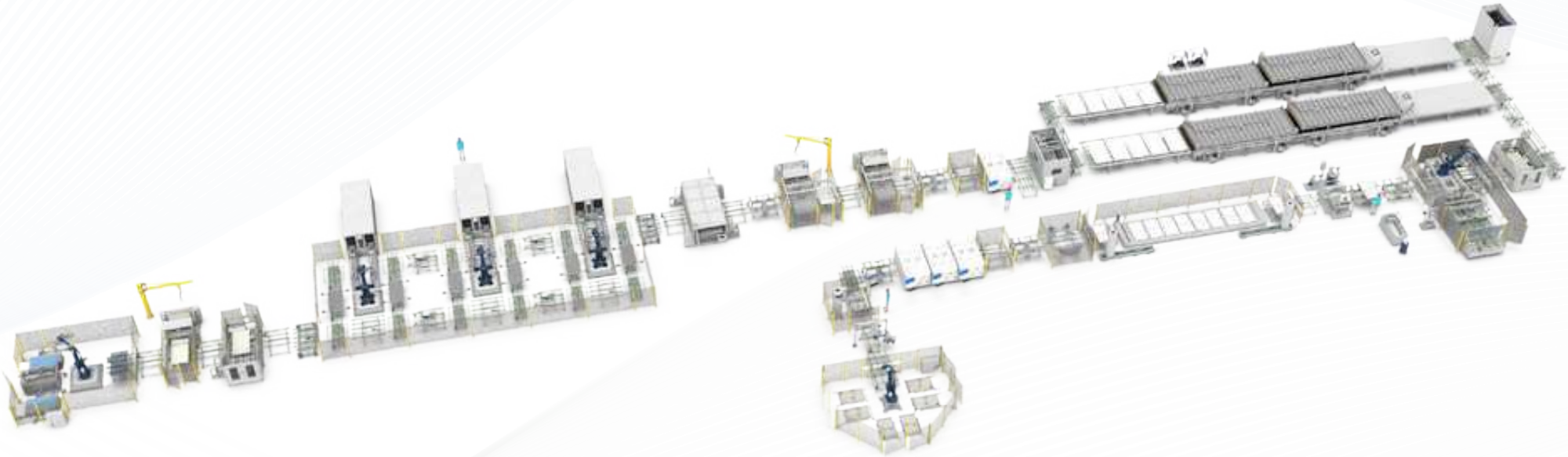
ECOPROGETTI
SPECIALIST IN PHOTOVOLTAIC
PRODUCTION PROCESS

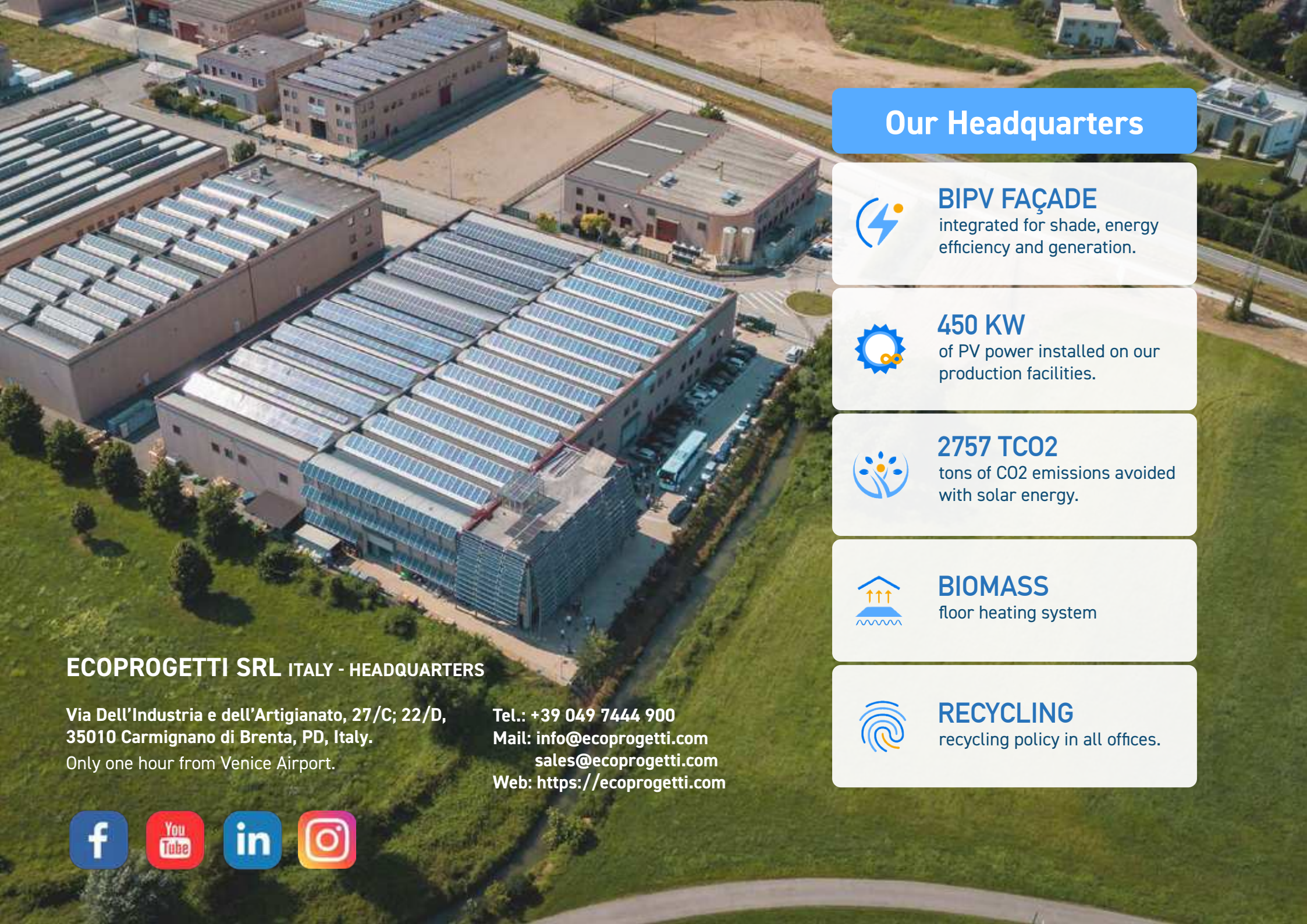
100% Made in Italy

MACHINES AND TURNKEY LINES

FOR PHOTOVOLTAIC MODULE PRODUCTION



CATALOGUE 2024



Our Headquarters

BIPV FAÇADE
integrated for shade, energy efficiency and generation.

450 KW
of PV power installed on our production facilities.

2757 TCO2
tons of CO2 emissions avoided with solar energy.

BIOMASS
floor heating system

RECYCLING
recycling policy in all offices.

ECOPROGETTI SRL ITALY - HEADQUARTERS

Via Dell'Industria e dell'Artigianato, 27/C; 22/D,
35010 Carmignano di Brenta, PD, Italy.
Only one hour from Venice Airport.

Tel.: +39 049 7444 900
Mail: info@ecoprogetti.com
sales@ecoprogetti.com
Web: https://ecoprogetti.com

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HISTORY

1994



PHOTOVOLTAIC SUPPLY CHAIN

Domenico Sartore acquires decades of experience in the polysilicon, ingot, and wafer sectors, specializing in automatic cleaning lines, wafer quality control and cell production technologies.

1998







ECOPROGETTI FOUNDATION

Coming in with a strong background Domenico and his team began to move from manual production to fully automatic line to improve the quality of PV modules.

2010



1ST LED SUN SIMULATOR

Ecoprogetti develops the first sun simulator LED based in the market. This machine was the starting point for the new generation of LED Sun Simulators worldwide.













2011-2020



WORLDWIDE SUBSIDIARIES

Ecoprogetti establishes sales and service offices in:

- India (2011)
- Dubai, UAE (2013)
- USA (2014)
- Philippines (2017)
- Turkey (2020)

2016



A SOLAR FAMILY

The management of the company passed from father to daughter making the company even bigger and stronger than before with new management innovations.

2024



CONTINUOUS INNOVATION

Ecoprogetti continues to design and build machines to optimize the quality of PV panels, continuously innovating to improve their durability, reduce costs, and promote sustainability.

OUR PHILOSOPHY

TECHNOLOGY AT THE SERVICE OF THE ENVIRONMENT AND ECO-FRIENDLY DEVELOPMENT







FLEXBILITY

- Wide range of PV panels.
- Custom technology and machines.
- Multitask machines.
- Supports various raw materials.
- Fits multiple panel sizes.

SIMPLICITY

- User friendly machines.
- Easy remote Service and Support.
- Low maintenance level.
- Quick & Cost competitive ramp up.
- Low spare parts cost.

MODULARITY

- Expandable production capacity.
- Modular solutions: 30 MW to 5 GW.
- Reduced production space.
- Simple upgrade to automation.

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GLOBAL OFFICES



THE ONLY PRODUCTION SITE

ITALY

Via dell'Industria e dell'Artigianato 27/C, 22/D,
35010 Carmignano di Brenta (PD), Italy.

MRS LAURA SARTORE
SALES@ECOPROGETTI.COM



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MR RAJEN SHAH
RAJEN.SHAH@ECOPROGETTI.COM



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All4-GP North America.
345 Mira Loma Avenue, 91204 Glendale, CA.

MR MATT GANSEN
MATT.GANSEN@ALL4-GP.US



SALES & SERVICE OFFICE

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San Isidro, Sucat, Parañaque, PH 1700.

MR JESS KRISTOFFER
JESS@ELITECH.COM.PH



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Dubai, UAE.

MR WAJIH WALHAZI
WAJIH.WALHAZI@ECOPROGETTI.COM



SALES & SERVICE OFFICE

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Emasolar Energy - Gayrettepe Mah. Cemil Aslan
Güder Sk. No: 2/9 34349 Beşiktaş Istanbul Türkiye

MR MEHMET KILIÇOĞLU
MEHMET.KILICOGLU@EMASOLAR.COM.TR

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CERTIFICATIONS

CERTIFIED COMPANY

Ecoprogetti attaches great importance to quality systems in order to improve both customer satisfaction and the organization of its own staff. Ecoprogetti works according to the ISO9001:2015 standards.



TÜV NORD

CERTIFICATE

Management system as per
ISO 9001 : 2015

The Certification Body TÜV NORD CERT GmbH hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

ECOPROGETTI S.r.l.
Via dell'Industria e dell'Artigianato, 22/D E 27/C
35010 Carmignano di Brenta (PD)
Italy

operates a management system in accordance with the requirements of ISO 9001 : 2015 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope

Design, production, supply and installation of machinery for producing photovoltaic panels.

Certificate Registration No. 44 100 107372
Audit Report No. 23278/2022

Validity old certificate: 11-01-2023
Valid from 04-02-2023
Valid until 11-01-2026
Initial certification 06-02-2008

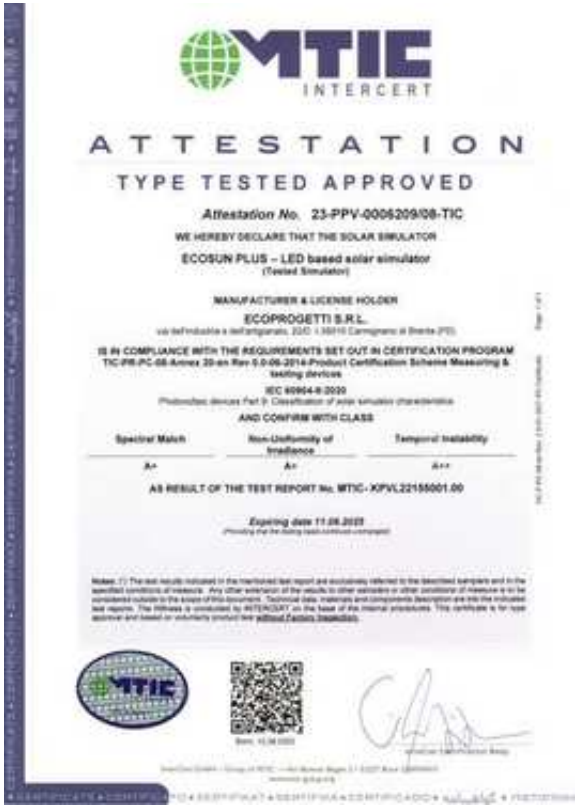
Certification Body
at TÜV NORD CERT GmbH

Bologna, 04-02-2023

TÜV NORD CERT GmbH Am TÜV 1 45307 Essen www.tuev-nord-cert.com

MACHINE CERTIFICATIONS

Ecoprogetti has ensured the excellence of its manufacturing processes by obtaining quality certifications for its machine.



MTIC INTERCERT

ATTESTATION

TYPE TESTED APPROVED

Attestation No. 23-PPV-0006209/08-TIC

WE HEREBY DECLARE THAT THE SOLAR SIMULATOR

ECOSUN PLUS – LED based solar simulator
(Tested Simulator)

MANUFACTURER & LICENSE HOLDER

ECOPROGETTI S.R.L.

IS IN COMPLIANCE WITH THE REQUIREMENTS SET OUT IN CERTIFICATION PROGRAM TIC-PR-PC-08-Annex 20-en Rev 5.0-06-2014-Product Certification Scheme Measuring & testing devices

IEC 60904-9:2020

AND CONFIRM WITH CLASS

Spectral Match	Non-Uniformity of Irradiance	Temporal Instability
A+	A+	A++

AS RESULT OF THE TEST REPORT No. MTIC- KPVL22155001.00

Expiring date 11.06.2023

CERTIFICATION SUPPORT

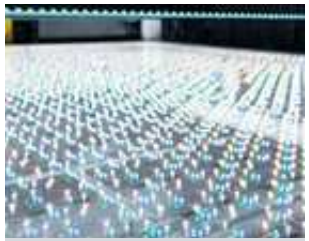
Ecoprogetti offers assistance with the certification process for your PV panels via a network of recommended organizations, helping our customers to achieve mandatory product certifications: IEC 61215, IEC 61730-1, IEC 61730-2, UL 61730 and optional.



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TECHNOLOGY INNOVATION

LED SUN SIMULATOR



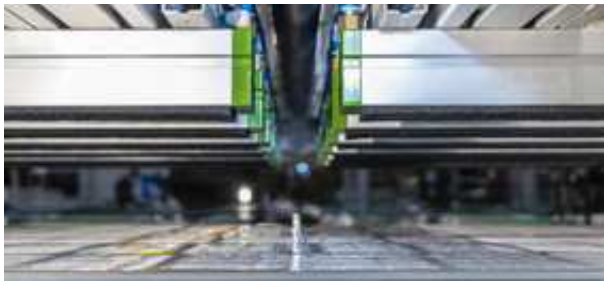
LED BOARDS



STEADY STATE

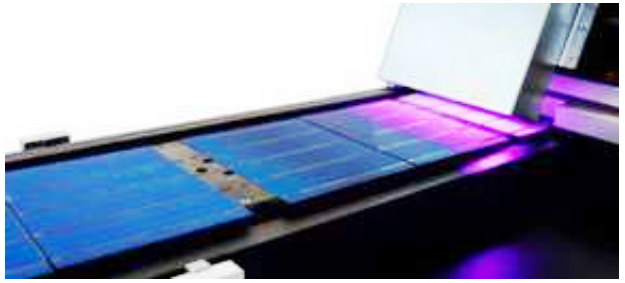
In 2010 we launched the first LED sun simulator of the market. In 2022 we patented a new steady state sun simulator for new solar cells (i.e. Perovskite tandem).

INDUCTION BUSSING



The most dynamic interconnections soldering machine. Patented in 2019 it is still the most appreciated automatic bussing machines in the market.

RIBBON COLORING SYSTEM



A unique coloring and drying system for the ribbon of the strings, which may be aesthetically interesting for certain applications.

J-BOX APPLICATOR



A complete technological innovation for the whole j-box application, from the silicone application to the soldering of the connections.

ELECTRICAL LAMINATOR



Reaffirming itself as one of the most accurate laminators in the market with a new heating system and other improvements.

STRINGER MACHINE



Ecoprogetti is constantly developing new innovative technologies many of which have patents or patent pendings.

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PRODUCTION EQUIPMENT

TURNKEY PRODUCTION LINES

From the idea of the your ideal photovoltaic panel to the manufacturing solutions that will produce it.

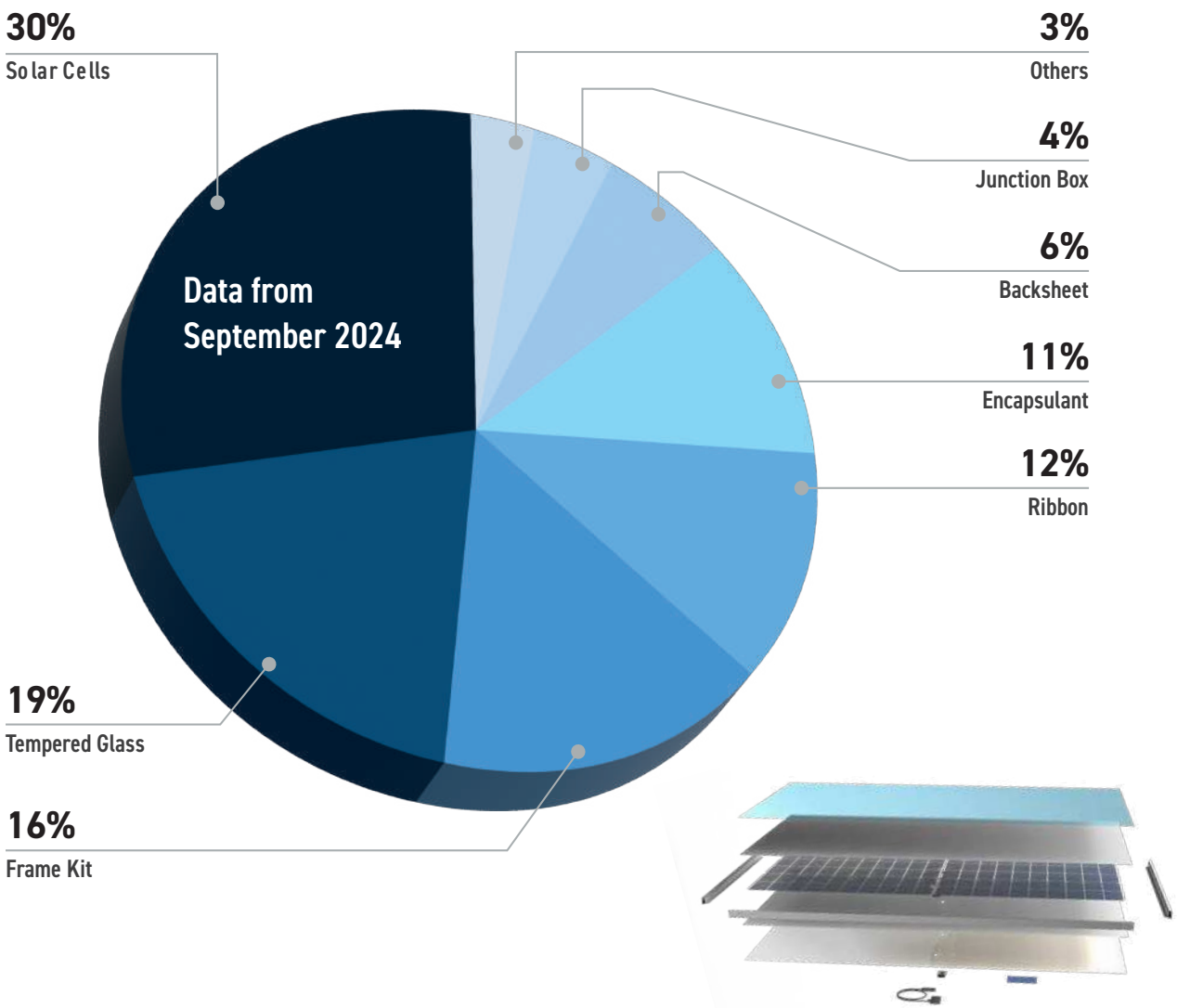




MATERIAL CONTRIBUTION

THE COST OF A PV PANEL

Example: TOPCon M10, 16 BB, Glass+Backsheet (~ 650 W panel)



30% SOLAR CELLS

19% TEMPERED GLASS

16% FRAME KIT

12% RIBBON

11% ENCAPSULANT

6% BACK-SHEET

4% JUNCTION BOX

3% OTHERS

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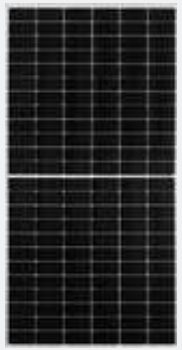
YOUR IDEA & OUR EXPERTISE

CHOOSE THE PV PANEL THAT YOU WANT TO PRODUCE

COLORED PV AND BIPV



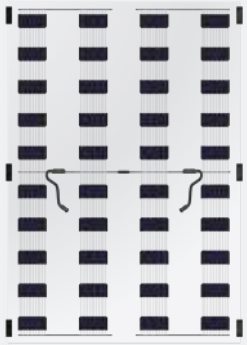
HALF-CUT CENTRALIZED



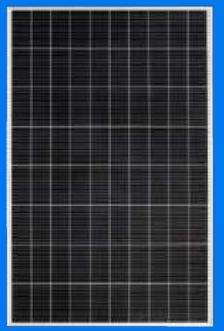
BIFACIAL GLASS GLASS



AGRIVOLTAIC



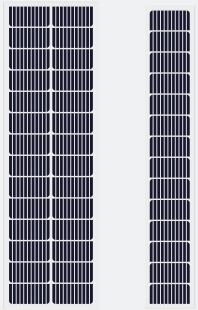
CUSTOM DESIGN



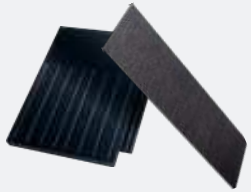
PVC INTEGRATED



SINGLE OR DOUBLE STRING



SOLAR ROOF TILES



SOLAR STREET LIGHTS



LIGHTWEIGHT/FLEXIBLE



VEHICLE INTEGRATED



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SOLAR PANEL APPLICATIONS

PANELS PRODUCED WITH ECOPROGETTI'S PRODUCTION EQUIPMENT

ANYTHING IS POSSIBLE



CARPOT



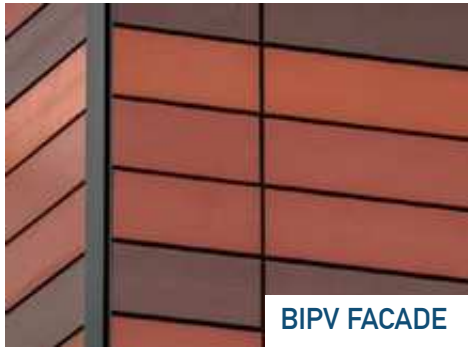
BIPV



AGRIVOLTAIC



FLOATING PV



BIPV FACADE



VEHICLE INTEGRATED



SOLAR PARK



BIPV



INDUSTRIAL ROOFTOP

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PHOTO: SOLLIANCE TNO



PHOTO: FRAUNHOFER ISE

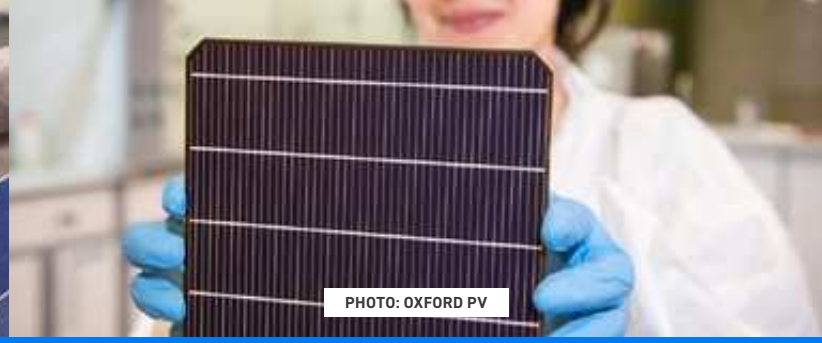


PHOTO: OXFORD PV

RESEARCH & DEVELOPMENT

CONTINUOUS INNOVATION

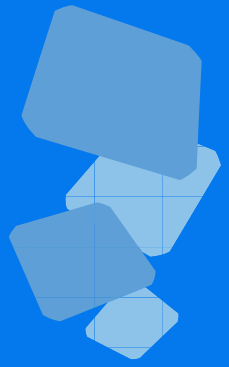
1 NEW TECHNOLOGY

We constantly work on new, cutting-edge machinery, pioneering new technologies, and processes.



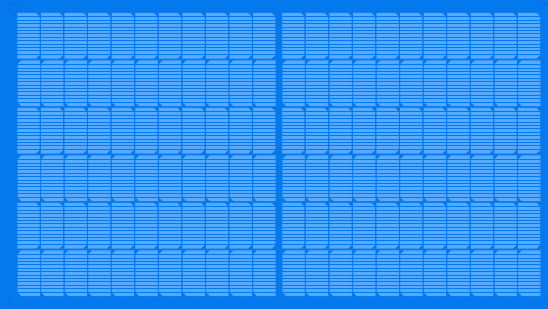
2 NEW MATERIALS

Exploring next-gen materials to enhance manufacturing for solar efficiency and durability.



3 NEW PV PANELS

Improvements to ensure PV panel's peak performance, reliability, and ability to reach 40 years lifetime.



PV PRODUCTION PROCESS STEPS

AN OVERVIEW OF PRODUCTION STEPS

MATERIAL PREP.
- CELLS TEST & CUT
- EVA FOIL CUT
- BACKSHEET CUT
- RIBBON CUT&BEND
- GLASS
- FRAME & J-BOXES

STRING & LAYUP
- STRINGER MACHINE
- LAYUP STATION

INTERCONNECTION
- AUTOMATIC BUSSING
- EL TESTER
- DARK I-V TEST
- ELECTRICAL TEST
- QUALITY INSPECTION

LAMINATION
- LAMINATION
- COOLING
- GEL CONTENT TEST

TRIM & FRAME
- TRIMMING
- FRAMING
- CORNERS PUNCHING
- CORNERS GRINDING
- SILICONE DISPENSER
- J-BOX APPLICATION

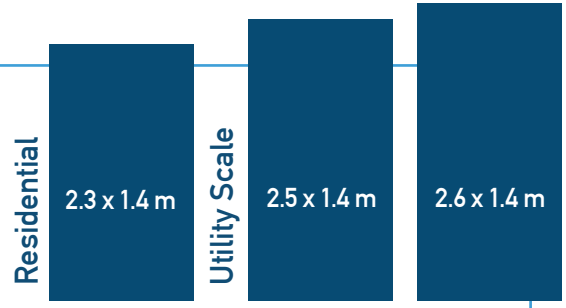
QUALITY TESTS
- I-V MEASUREMENT
- POWER RATING
- EL TESTER
- HI-POT TESTING
- SUN SIMULATION

RAW MATERIALS



Ecoprogetti's production lines can be set for one of these two main panel's sizes:

Alternative sizes provided upon request





STRINGING



STRING LAYUP



BUSSING

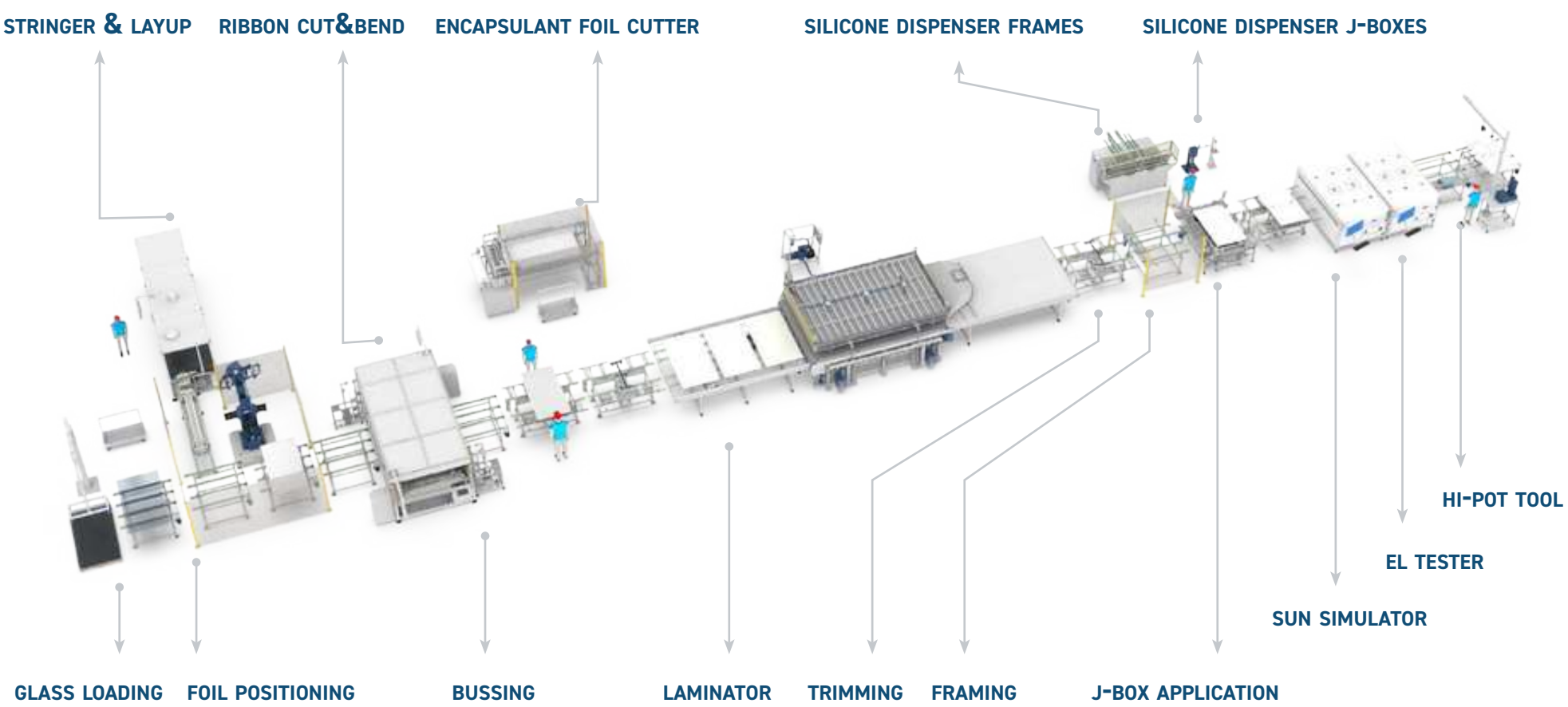


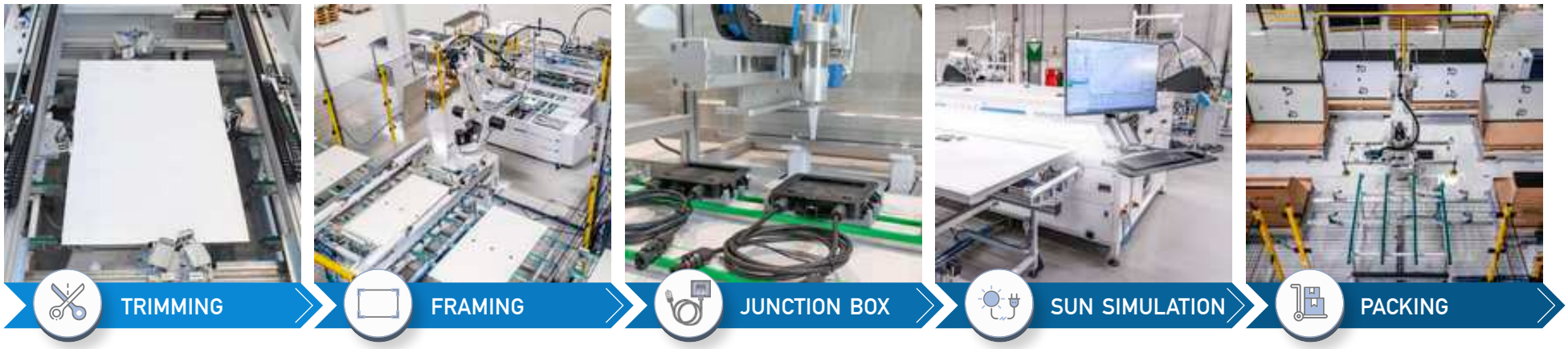
EL TESTING



LAMINATION

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SEMI-AUTOMATIC

ENTRY LINE

30 MW
PV MODULE MANUFACTURING

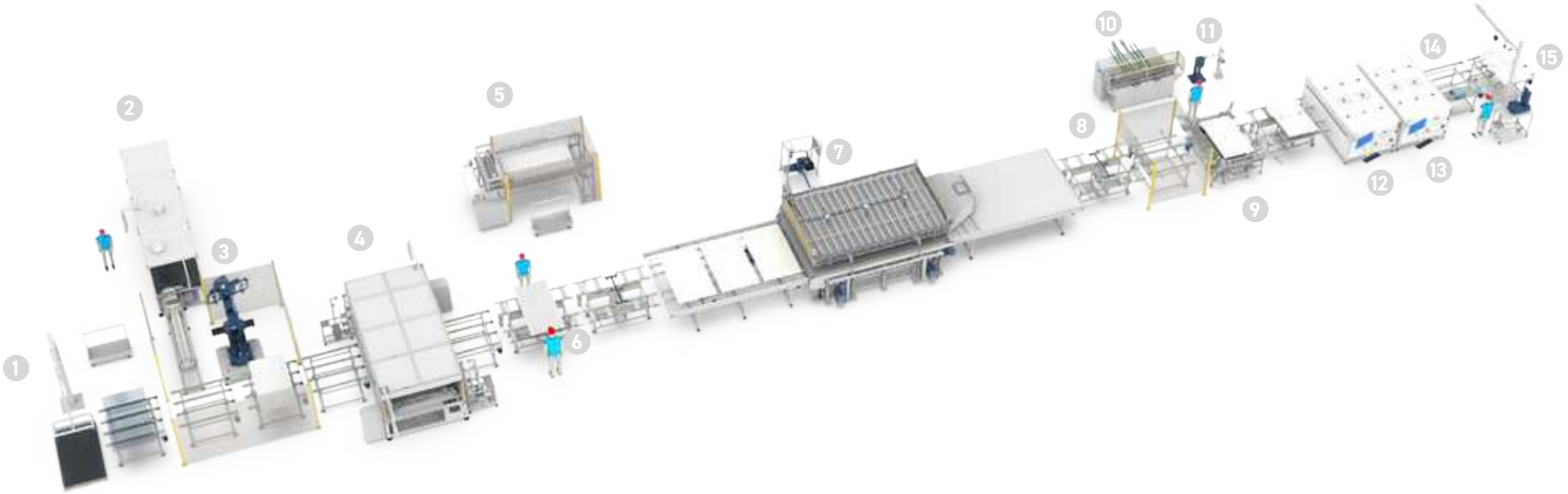
30 MW/Year

18 panels/h

5 workers per shift

150 kWh
0.6 MPa | 900 nL/1'

750 sqm
area required



EQUIPMENT LIST

1. Glass loader ECOWEIGHTLESS
2. Stringer machine ETS 3000
3. Robotic Layup ECOLAYUP R
4. In-line automatic bussing ECOBUSSING A
5. Foil cutter machine ECOCUT 20
6. Worktable MULTISTATION
7. Laminator ECOLAM 2500 3
8. In-line manual Trimming ECOMULTISTATION
9. Semi automatic Framing ECOFRAME HA
10. Automatic silicone dispender for frames ECOSIL 14
11. J-box silicone station ECOSIL 03
12. LED Sun Simulator ECOSUN PLUS
13. EL tester ECOLAB EL HR
14. Hi-pot tool ECOHI-POT
15. Manual potting POTTING TOOL

HALF CELL

M10 - M12
182mm - 210mm

700-750 W
per module

8 hours per day

330 days/year

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SEMI-AUTOMATIC

100 MW SMART

PV MODULE MANUFACTURING

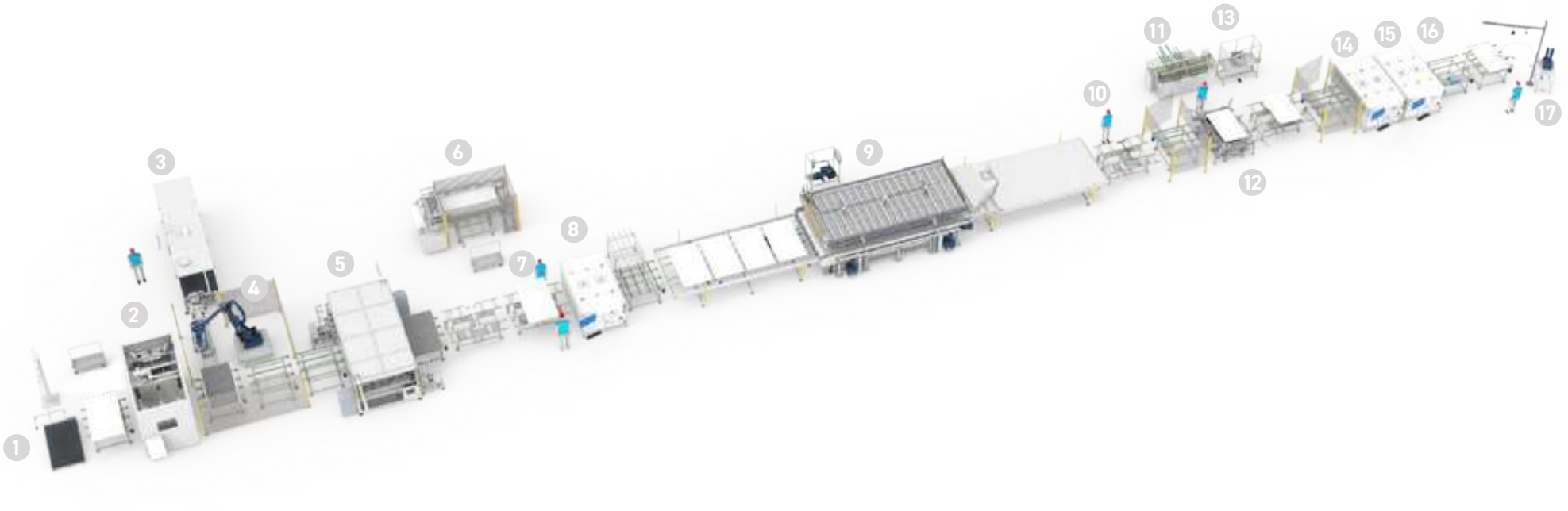
100 MW/Year

20 panels/h

6 workers per shift

160 kWh
0.6 MPa |1000 nL/1'

900 sqm
area required



EQUIPMENT LIST

1. Glass loader ECOWEIGHTLESS
2. Module Storage BUFFER FIFO 15
3. Stringer machine ETS 3000
4. Robotic Layup ECOLAYUP R
5. Automatic Bussing ECOBUSSING A
6. Foil cutter machine ECOCUT 20
7. In-line manual bussing ECOMULTISTATION
8. EL tester pre-lamination ECOLAB EL HR
9. Laminator ECOLAM 2500 4
10. In-line manual Trimming
11. Frame silicone dispender ECOSIL 14
12. Semi automatic Framing ECOFRAME HA
13. Semi-automatic j-box station ECOJ-BOX S
14. LED Sun Simulator ECOSUN PLUS
15. EL tester post-lamination ECOLAB EL HR
16. Manual Hi-pot tool
17. Manual j-box Potting tool

HALF CELL

M10 - M12
182mm - 210mm

700-750 W
per module

24 hours per day

330 days/year

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SEMI-AUTOMATIC

200 MW SMART

PV MODULE MANUFACTURING

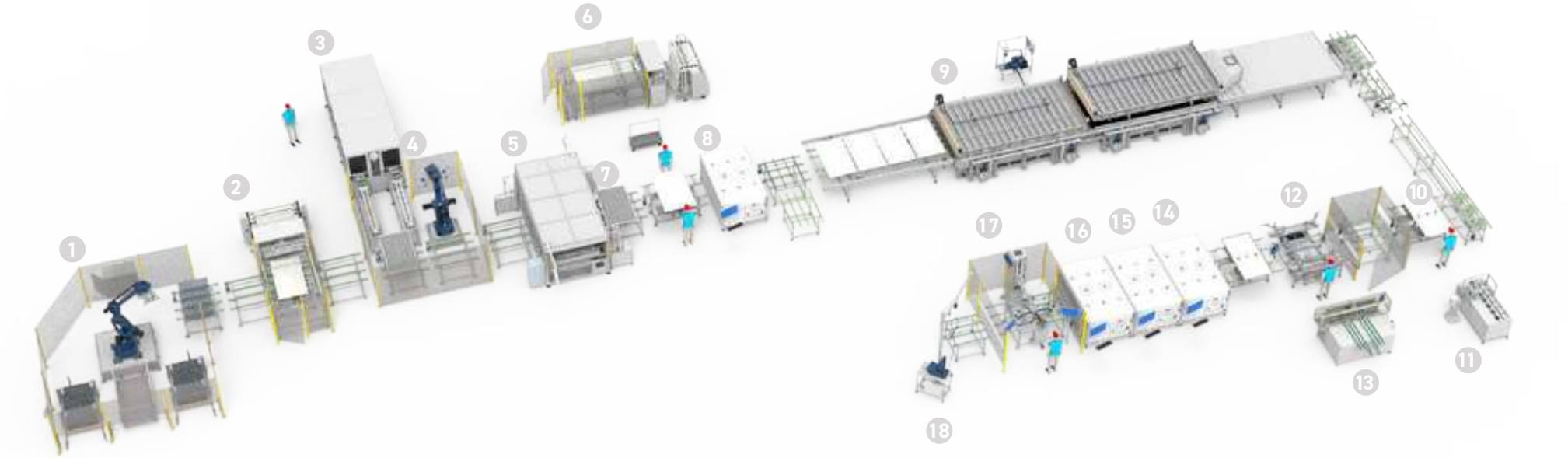
200 MW/Year

40 panels/h

6 workers per shift

200 kWh
0.6 MPa | 4600 nL/1'

1300 sqm
area required



EQUIPMENT LIST

1. Glass layup ECOGLASS R
2. Foil cutter ECOCUT 20 A
3. Stringer Machine ETS 6000
4. Layup ECOLAYUP R
5. Automatic bussing machine
6. Foil cutter machine ECOCUT 20
7. Multistation for EVA/Backsheet
8. In-line EL tester ECOLAB EL HR
9. Laminator ECOLAM 2500 4 DS
10. Multistation for Trimming & J-box
11. Automatic j-box station ECOJ-BOX A
12. Semi-auto framing ECOFRAME HA
13. Frame silicone dispender ECOSIL 14
14. LED Sun simulator ECOSUN PLUS
15. EL tester ECOLAB EL HR
16. Hi-pot tester ECOHI-POT
17. Visual Inspection station
18. Potting tool for j-box

HALF CELL

M10 - M12
182mm - 210mm

700-750 W
per module

24 hours per day

330 days/year

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FULLY AUTOMATIC

HIGHLY AUTOMATIC LINE

200 MW FULLY
PV MODULE MANUFACTURING

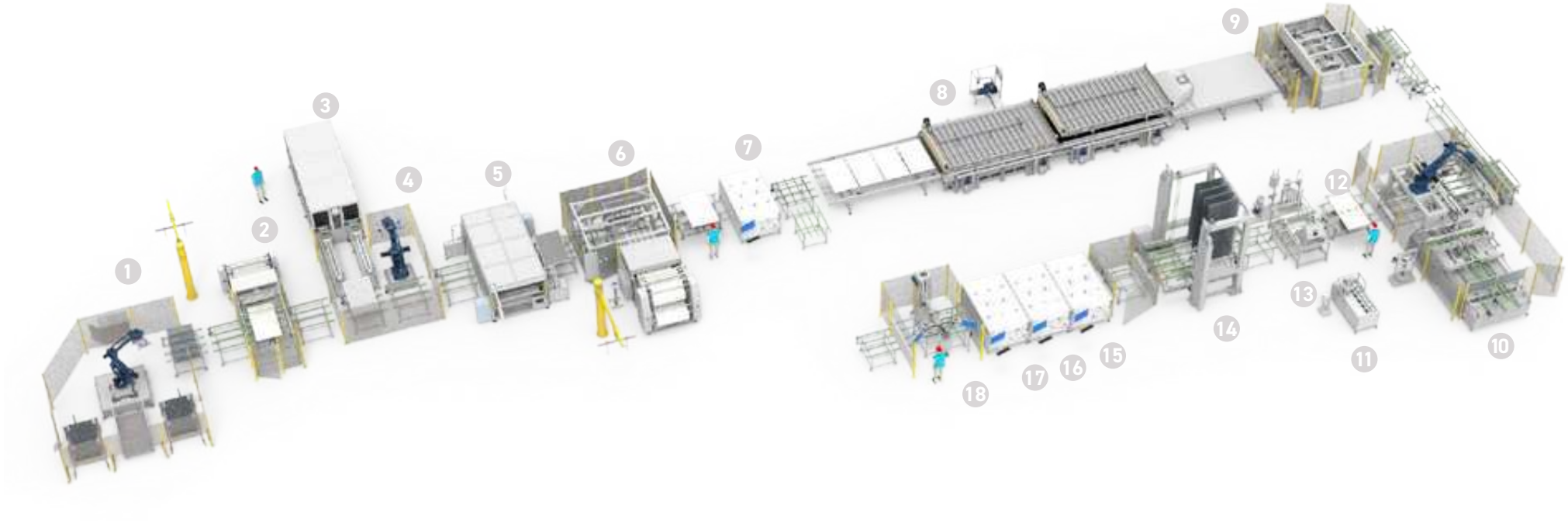
200 MW/Year

40 panels/h

4 workers per shift

240 kWh
0.6 MPa | 2700 nL/1'

1700 sqm
area required



EQUIPMENT LIST

1. Glass layup ECOGLASS R
2. Inline foil cutter ECOCUT 20 A
3. Stringer Machine ETS 6000
4. Layup ECOLAYUP R
5. Automatic bussing machine
6. Double spool ECOCUT 20 AP DOUBLE
7. Inline EL tester before lamination
8. Laminator ECOLAM 2500 5 DS
9. Fully Automatic Trimming
10. Fully Automatic Framing
11. Automatic J-box silicone station
12. Multistation for J-box
13. Automatic J-box Potting station
14. Module storage BUFFER FIFO 30
15. LED sun simulator ECOSUN PLUS
16. EL tester ECOLAB EL HR
17. Hi-Pot tester ECOHI-POT
18. Visual inspection station

HALF CELL

M10 - M12
182mm - 210mm

700-750 W
per module

24 hours per day

330 days/year

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AUTOMATIC

NEXT LINE

400 MW NEXT

PV MODULE MANUFACTURING

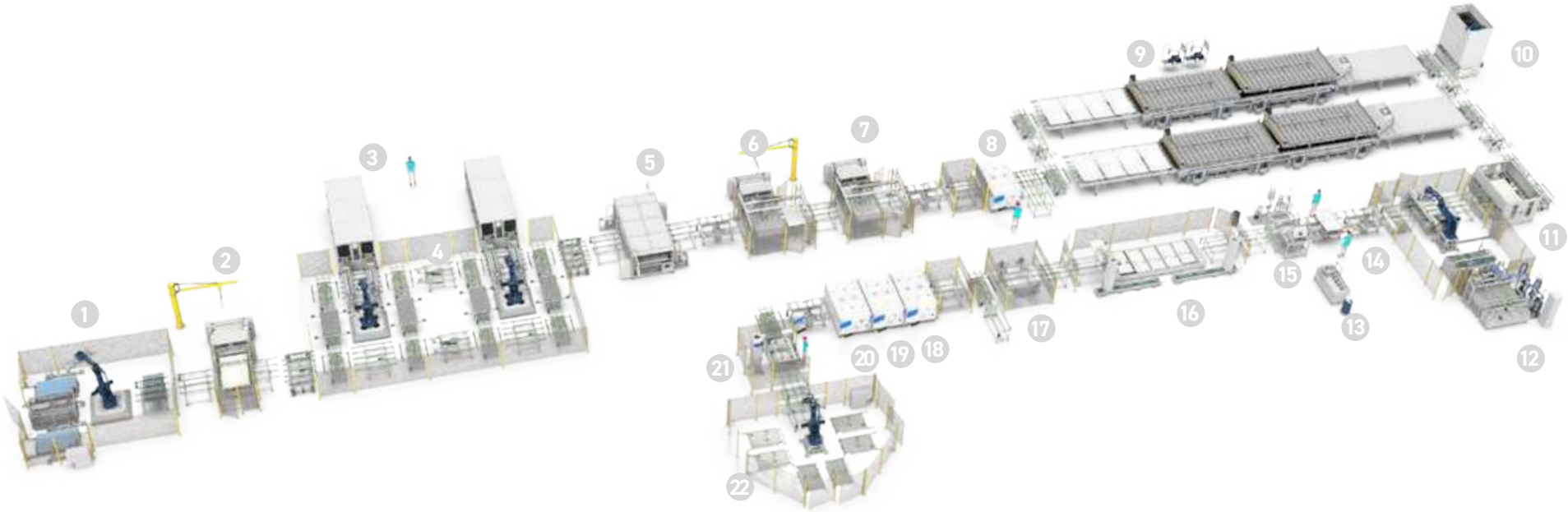
400 MW/Year

80 panels/h

5 workers per shift

360 kWh
0.6 MPa | 4600 nL/1'

3000 sqm
area required



EQUIPMENT LIST

1. Glass layup ECOGLASS R
2. 1° EVA Foil cutter ECOCUT 20 A
3. x2 Stringer ETS 6000
4. x2 Layup ECOLAYUP R
5. Automatic bussing ECOBUSSING
6. 2° EVA Foil cutter ECOCUT 20 AP
7. BS Foil cutter ECOCUT 20 AP
8. EL tester ECOLAB EL HR
9. x2 Module storage BUFFER FIFO 30
10. Laminator ECOLAM MAX 5 DS
11. Fully Automatic Trimming
12. Fully Automatic Framing
13. Automatic J-box station
14. Work table for j-box application
15. Fully Auto J-box Potting
16. Curing tunnel ECOCURING
17. Corner chamfering
18. LED sun simulator
19. EL tester ECOLAB EL HR
20. Hi-Pot tester
21. Visual inspection station 90°
22. Packaging and sorting robot

HALF CELL

M10 - M12
182mm - 210mm

700-750 W
per module

24 hours per day

330 days/year

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FULLY AUTOMATIC

600 MW GLOBAL

PV MODULE MANUFACTURING

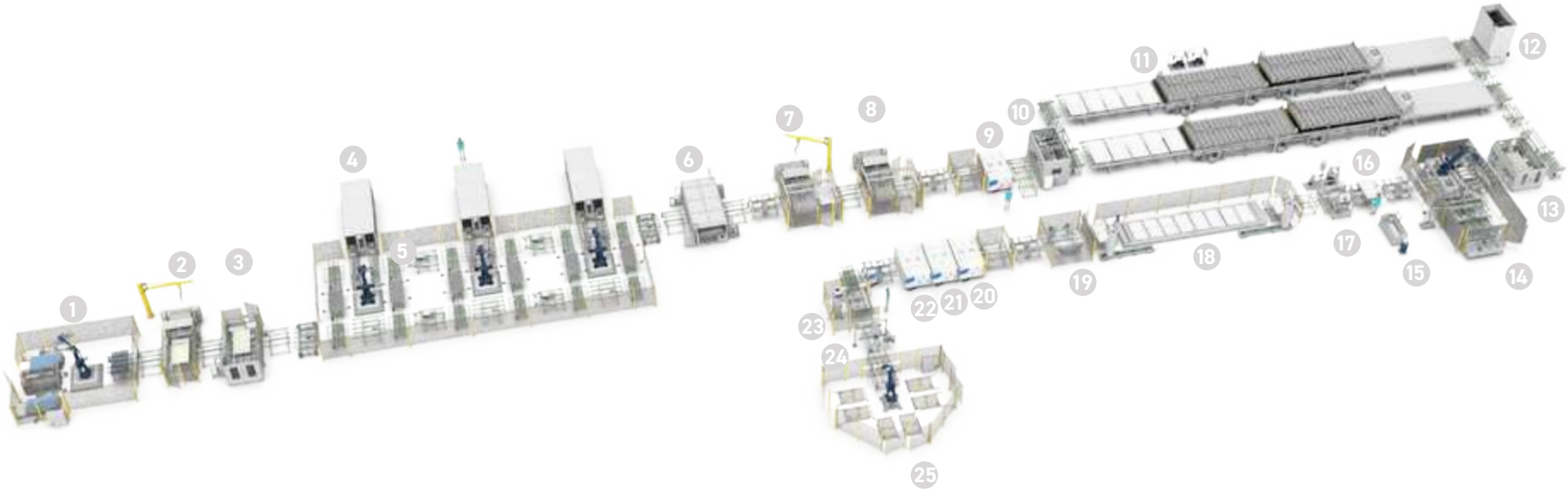
600 MW/Year

120 panels/h

4 workers per shift

470 kWh
0.6 MPa | 4600 nL/1'

3300 sqm
area required



EQUIPMENT LIST

1. Glass layup ECOGLASS R
2. 1° EVA Foil cutter ECOCUT 20 A
3. EPE Stripe positioner
4. x3 Stringer ETS 6000
5. x3 Layup ECOLAYUP R
6. Auto bussing ECOBUSSING
7. 2° EVA Foil cutter ECOCUT 20 AP
8. BS Foil cutter ECOCUT 20 AP
9. EL tester ECOLAB EL HR
10. Module storage BUFFER FIFO 15
11. x2 Laminator ECOLAM 2500 5 DS
12. Module storage BUFFER LIFO 30
13. Fully Automatic Trimming
14. Fully Automatic Framing
15. Automatic J-box silicone station
16. Work table for j-box application
17. Fully Auto J-box Potting
18. Curing tunnel ECOCURING
19. Corner chamfering
20. LED sun simulator
21. EL tester ECOLAB EL HR
22. Hi-Pot tester ECOHI-POT
23. Visual inspection station 90°
24. Auto Labelling ECOLABELING
25. Packaging and sorting robot

HALF CELL

M10 - M12
182mm - 210mm

700-750 W
per module

24 hours per day

330 days/year

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FULLY AUTOMATIC

FULLY AUTO LINE

800 MW FULLY
PV MODULE MANUFACTURING

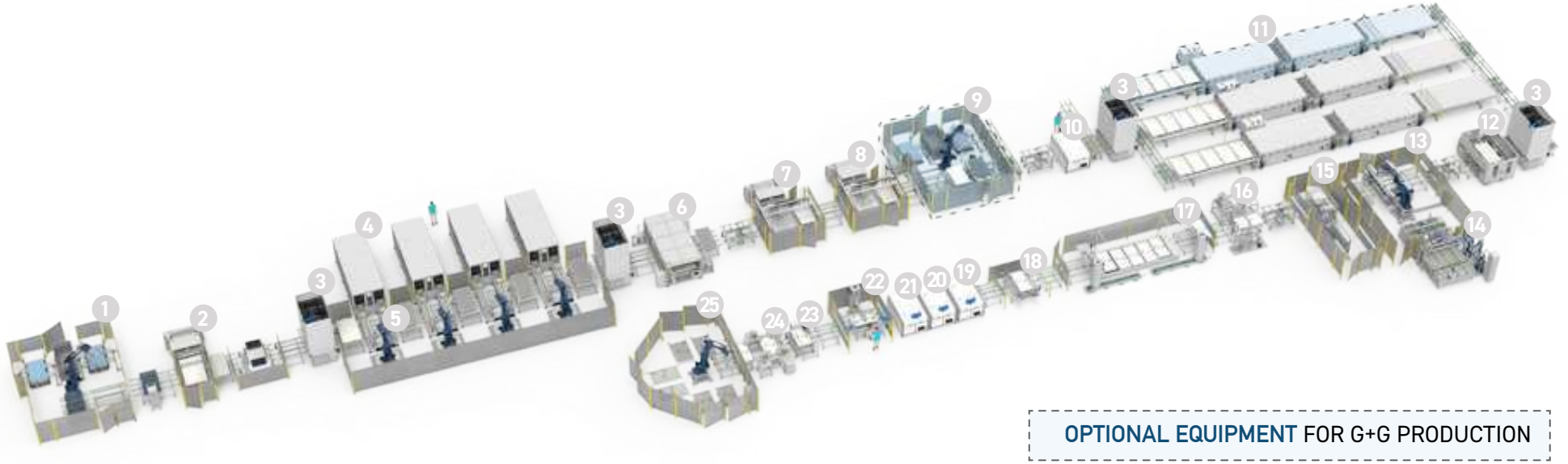
800 MW/Year

160 panels/h

3 workers per shift

600 kWh
0.6 MPa | 7800 nL/1'

3800 sqm
area required



OPTIONAL EQUIPMENT FOR G+G PRODUCTION

EQUIPMENT LIST

1. Glass layup ECOGLASS R
2. Automatic EVA foil cutter
3. x4 Buffer Module storage
4. x4 Stringer ETS 6000
5. x4 Layup ECOLAYUP R
6. Automatic bussing machine
7. Automatic 2nd EVA foil cutter
8. Automatic Backsheet cutter
9. 2nd glass layup ECOGLASS R 2ND
10. EL tester ECOLAB EL HR
11. x3 Laminator ECOLAM MAX 5 DS
12. Fully Automatic Trimming
13. Fully Automatic Framing
14. Automatic J-box station
15. Work table for j-box application
16. Fully Auto J-box Potting
17. Curing tunnel ECOCURING
18. Corner chamfering
19. LED sun simulator
20. EL tester ECOLAB EL HR
21. Hi-Pot tester
22. Visual inspection station 90°
23. Automatic Labelling
24. Automatic Corner placer
25. Packaging and sorting robot

HALF CELL

M10 - M12
182mm - 210mm

700-750 W
per module

24 hours per day

330 days/year

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FULLY AUTOMATIC

UNIVERSAL
1 GW LINE

1.2 GW UNIVERSAL

PV MODULE MANUFACTURING

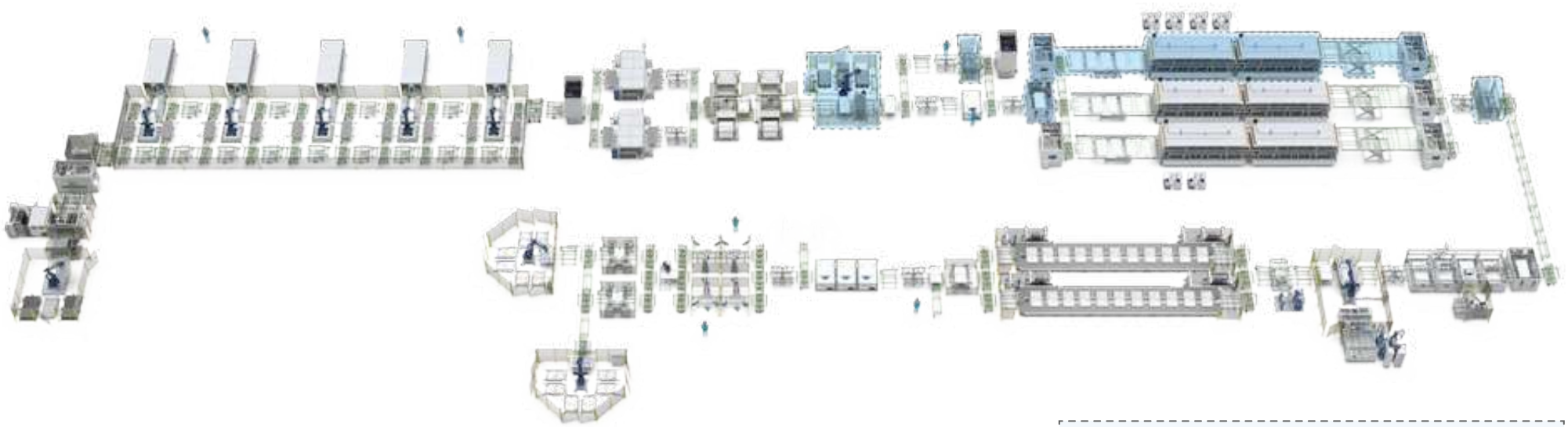
1.200 MW/Year

200 panels/h
1 panel/18"

7 workers per shift

1200 kWh
0.6 MPa | 10300 nL/1'

6000 sqm area required



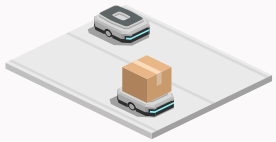
OPTIONAL EQUIPMENT FOR G+G PRODUCTION

AVAILABLE OPTIONAL: AGV FLEET MANAGEMENT

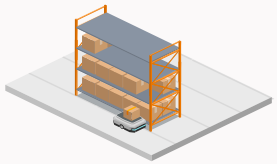
AUTONOMOUS GUIDED VEHICLES FLEET MANAGEMENT



Automated loading of raw materials on machines



Automated unloading of finished goods



HALF CELL

M10 - M12
182mm - 210mm

700 - 750 W
per module

24 hours per day

330 days/year

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FULLY AUTOMATIC

HYBRID line

2.4 GW HYBRID
PV MODULE MANUFACTURING

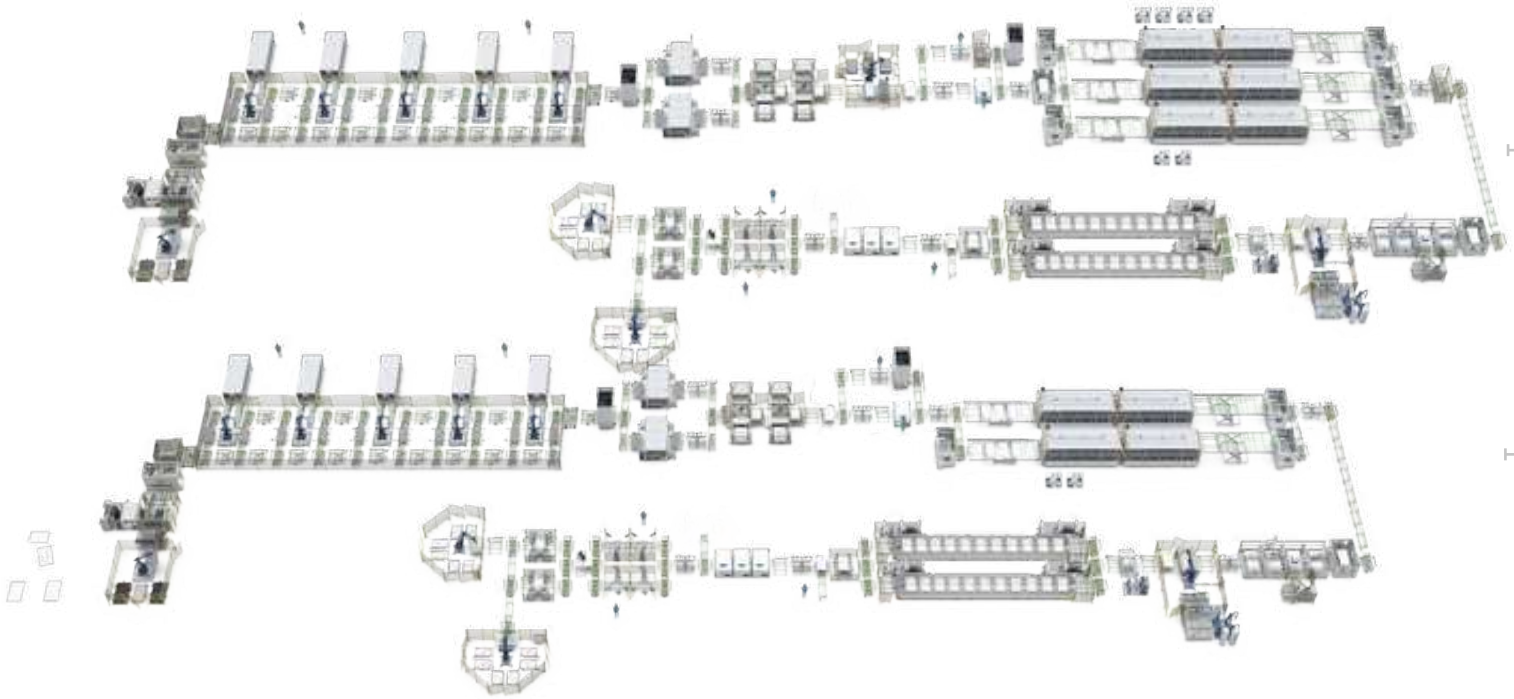
2400 MW/Year

400 panels/h

14 workers per shift

3000 kWh
0.6 MPa | 20600 nL/1'

12700 sqm
area required



1.2 GW/Year
FOR GLASS + GLASS PANELS

1.2 GW/Year
FOR GLASS + BACKSHEET PANELS

MODULAR
production line

ECOMES
traceability system

GLASS-GLASS
production suitability

GLASS-BACKSHEET
production suitability

AGV LOGISTICS
integrated

COMPATIBLE
TOPCon, HJT, BC, PERC

9000
panels per day

RUMP-UP
Temporary manager

HALF CELL

M10 - M12
182mm - 210mm

700-750 W
per module

24 hours per day

330 days/year

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A whole service bundle to help you start-up!



*The Premium service pack is available for 1.2 GW and 2.4 GW production lines.

PREMIUM SERVICE PACK

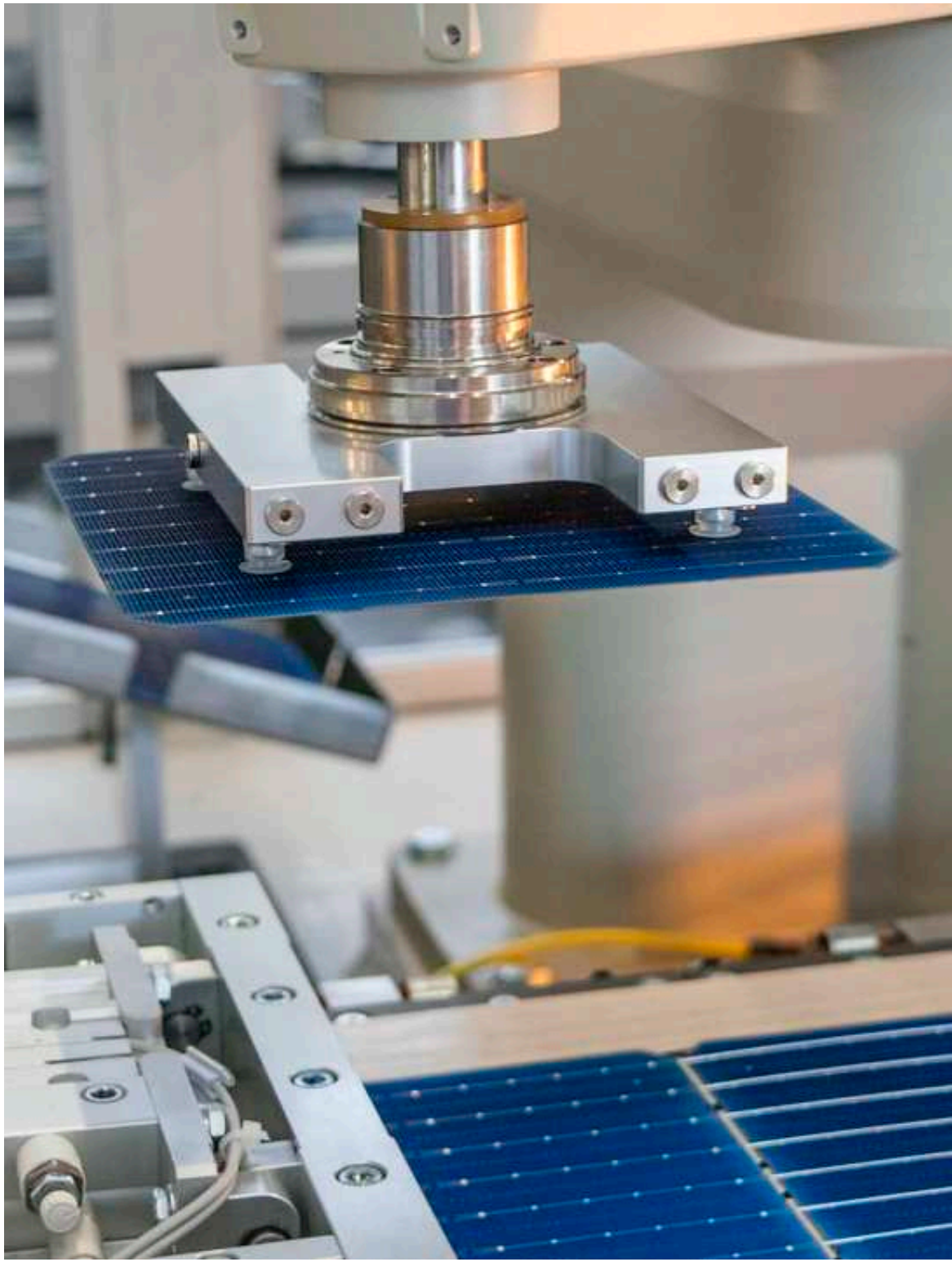
- +1 year Spare part & consumable kit
- Raw material selection and Procurement
- Full know-how transfer on the PV process
- Laboratory instruments & tools
- Temporary manager for rump up
- On-site Service technician for 6 months
- Complete Certification support for TÜV & UL
- Annual maintenance contracts (AMC)
- Distribution system for Electricity & Air
- Laboratory instruments & tools
- Production monitoring “system EcoMES”

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PRODUCTION EQUIPMENT

STRINGER & BUSSING

Ecoprogetti's stringer machines offer versatility in a compact design. Easily adaptable for different cell sizes and equipped with a precision laser scriber, they're ideal for diverse photovoltaic projects, including specialized BIPV applications. Their user-friendly interface ensures efficient operation.







FLEXIBLE MBB STRINGER MACHINE

ETS 3000

The ETS3000, an efficient infrared stringer machine, processes up to 3000 movements/hour. It's versatile, capable of soldering various cell technologies and sizes from 9 to 24 BusBars. Featuring an efficient wire management system, adjustable number of cells per string, and customizable gap sizes between cells, it's ideal for BIPV applications.



DATASHEET & VIDEO



EASY LOAD OF MATERIALS



EMBEDDED CELL LASER SCRIBER



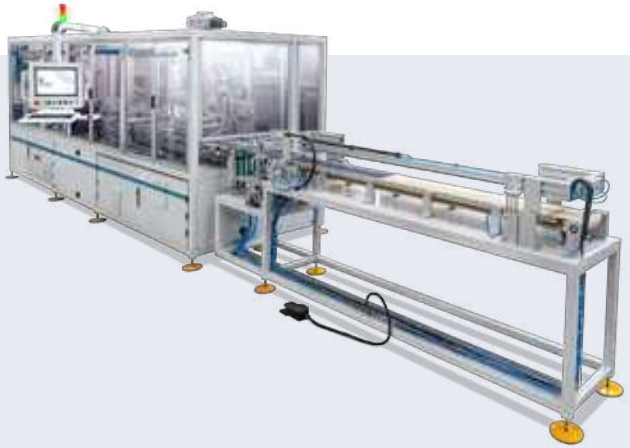
INFRARED SOLDERING SYSTEM

TECHNICAL DETAILS

Throughput	up to 3000 movements/hour* *Depending on the raw material
Cell compatibility	N-type TOPCon, IBC, HJT, P-type PERC
Bus Bar/Wire compatibility	from 9, 10, 11, 12, 16, 18, 20, 22, 24 BB
Cell size compatibility (Square)	182 mm ; 210 mm ; 230 mm
Cell size compatibility (Rectangular)	191x182 mm; 199x182 mm; 210x182 mm
Soldering technology	Infrared with pins
String length	Max 2500 mm - with kit
Dimensions (W x L x H)	2300 x 9000 x 1600 mm

OPTIONAL MQTT

HIGHLIGHTS



WORKS WITH:

FLAT RIBBON

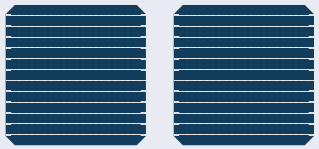
ROUND WIRE

THROUGHPUT

3000 MOV/HOUR

*MOV=Movements

The most flexible machine, perfect for BIPV applications, VIPV and AGRIPV



FULL CELL GAP max 35 mm

customizable up to 100



HALF CELL GAP max 50 mm

customizable up to 150

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HIGH SPEED MBB STRINGER MACHINE

ETS 6000

The ETS6000 is our fastest infrared stringer machine designed to solder TOPCon, IBC, HJT, PERC solar cells into strings at a throughput of 6000 cells/hour. The stringer can work with cells' sizes from 182 to 230mm (9 to 24 BB) full and half-cut.



DATASHEET & VIDEO



EASY LOAD OF MATERIALS



FRIENDLY INTERFACE



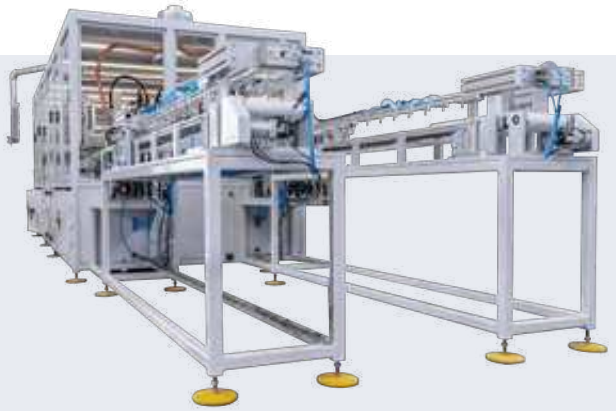
INFRARED SOLDERING SYSTEM

TECHNICAL DETAILS

Throughput	up to 6000 cells/hour* *Depending on the raw material
Cell compatibility	N-type TOPCon, IBC, HJT, P-type PERC
Bus Bar/Wire compatibility	from 9, 10, 11, 12, 16, 18, 20, 22, 24 BB
Cell size compatibility (Square)	182 mm ; 210 mm ; 230 mm
Cell size compatibility (Rectangular)	191x182 mm; 199x182 mm; 210x182 mm
Soldering technology	Infrared with pins
String length	Max 2500 mm
Dimensions (W x L x H)	2200 x 9000 x 2300 mm

OPTIONAL MQTT

HIGHLIGHTS



WORKS WITH:

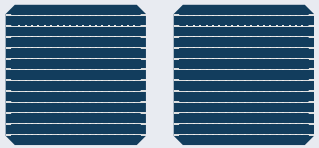
FLAT RIBBON

ROUND WIRE

THROUGHPUT

6000 CELLS/HOUR

High soldering quality; more than >1N/mm in peel test across the cell



FULL CELL GAP max 35 mm



HALF CELL GAP max 50 mm

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AUTOMATIC INTERCONNECTION SOLDERING

ECOBUSSING

The ECOBUSSING automates induction soldering for string interconnections, managing the cutting and bending of ribbons. It's compatible with any bus bar/wire count and efficiently solders with Ecoprogetti's patented system.



DATASHEET & VIDEO



COMPLETE RIBBON PROCESS



BUSSING OF ALL INTERCONNECTIONS



EASY CONTROLS WITH TOUCHSCREEN

TECHNICAL DETAILS

Throughput	< 25 sec/panel
Bus Bar/Wire compatibility	from 6 to 24 Bus bar/Wire
Soldering technology	Patented High performance induction soldering system
Ribbon Compatibility	Any ribbon type. Thickness above 0.3 mm. Width above 4 mm.
Dimensions (W x L x H)	4200 x 7150 x 2200 mm

RIBBON CUTTING, BENDING AND PLACING

The machine can bend the ribbon to fit the requirements of your specific pv panel. Also Vertical ribbon, U-bend, L-bend and overlapped ribbon.



OPTIONAL

- MQTT
- String alignment cameras

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HIGHLIGHTS



COMPATIBLE SIZES

min: 1650 x 850 mm

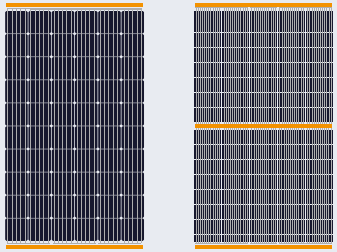
max: 2500 x 1400 mm

SOLDERING

INDUCTION SYSTEM

Automatic bussing for standard, centralized and customized PV panels.

- FULL CELL
- HALF CUT
- CUSTOM



PRODUCTION EQUIPMENT

STRING LAYUP & GLASS LAYUP

Ecoprogetti's Layup Systems offer specialized solutions for handling delicate materials in PV panel assembly. These systems, ranging from robotic string assembly to glass substrate handling and semi-automatic glass movement, ensure speed and accuracy, essential for the precise demands of PV panel production.




ECOPROGETTI

ROBOTIZED STRINGS LAYUP

ECOLAYUP R

ECOLAYUP R, a 6-axis robot, excels in high-throughput production lines, aligning strings from the stringer machine onto the glass. It positions strings accurately, maintaining the required spacing and electrical connection.



DATASHEET & VIDEO



THE MOST TRUSTED PICK&PLACE



VACUUM SUCTION CUPS



QUICK AND ACCURATE

TECHNICAL DETAILS

Throughput	400 Strings/hour* *Strings with 10 cells.
Stringer compatibility	Up to 1 stringer ETS 6000; Up to 1 stringer ETS 3000;
Grip system	Vacuum with suction cups
Centering system	Optical with dedicated camera
String length	Up to 2500 mm *Others upon request
Controls	Touchscreen
Dimensions (W x L x H)	4000 x 8000 x 4000 mm

OPTIONAL

- Custom gripper size
- I-V String measurement
- MQTT
- Camera for broken cells inspection
- EL/PL test of the strings

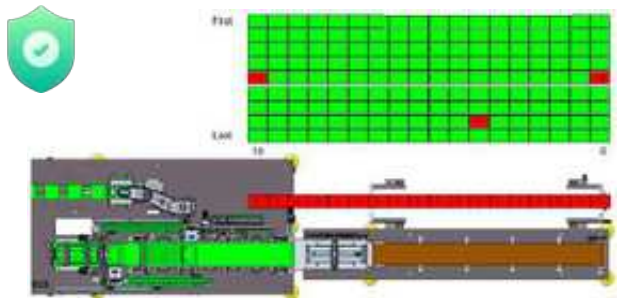
HIGHLIGHTS



COMPATIBILITY:
ANY SOLAR CELL

THROUGHPUT
400 STRINGS/HOUR

Quality Inspection Tracking (Optional)



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AUTOMATIC ROBOT FOR GLASS LAYUP

ECOGLASS R

ECOGLASS R, a robotized glass loading system, efficiently handles glasses of various sizes, transferring them from a pallet to the transport system. It features two pallet positions for continuous production and automatically removes protective paper, storing it separately.



1 DATASHEET & VIDEO ECOGLASS R 1ST

2 DATASHEET & VIDEO ECOGLASS R 2ND



ACCURATE POSITIONING OVER RIBBON EXITS



2ND GLASS LOADER FOR GLASS+GLASS



HIGH SAFETY STANDARDS

TECHNICAL DETAILS

Throughput	120 Glasses/hour
Pallets	Up to 4 glass pallets
Waste management	The protective paper is moved to a dedicated bin by the robot
Dimensions (W x L x H)	2300 x 9000 x 1600 mm
Protection	Safety fences

EASY&SAFE CHANGE OF GLASS PALLET

Once the pallet of glasses is depleted, the robot moves to the other pallet while the operator can Safely replace the pallet using a pallet jack.

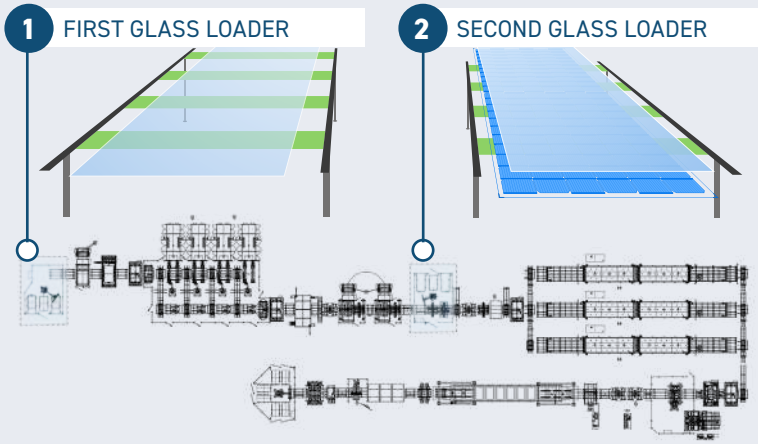


OPTIONAL MQTT

HIGHLIGHTS



The Ecoglass R can be positioned as a 1st glass loader or as a 2nd glass loader for glass glass panels.

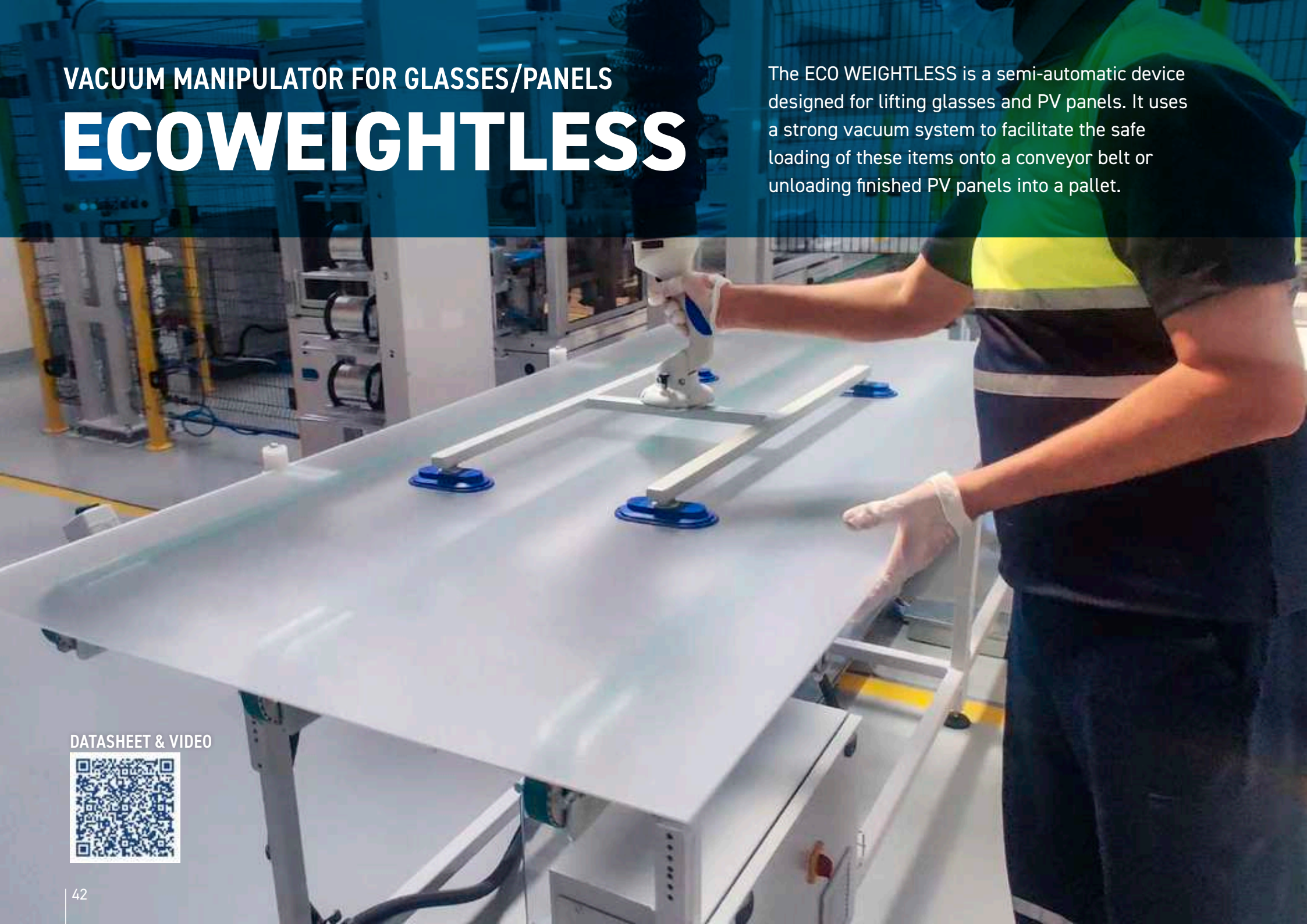


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VACUUM MANIPULATOR FOR GLASSES/PANELS

ECOWEIGHTLESS

The ECO WEIGHTLESS is a semi-automatic device designed for lifting glasses and PV panels. It uses a strong vacuum system to facilitate the safe loading of these items onto a conveyor belt or unloading finished PV panels into a pallet.



DATASHEET & VIDEO



STRONG VACUUM GRIP



CUSTOMIZABLE GRIPPERS AND SIZES



FLEXIBLE & EASY TO USE

TECHNICAL DETAILS

Ergonomics	Ergonomic and safe
Glass compatibility	ARC glasses
Glass sizes	from 1200 x 600 mm to 2500 x 1200 mm *others upon request
Lifting weight	Up to 35 Kg
Lifting height	Up to 1200 mm from the floor

OPTIONAL

- Vacuum head
- Custom gripper
- MQTT
- Higher vacuum level
- Higher lifting height

HIGHLIGHTS



YOUR MATERIAL IS SAFE

A SAFETY VALVE ENSURES A SLOW DEPOSITION IN THE EVENT OF A VACUUM SUPPLY FAILURE.

A tool that's comfortable and easy to use.
Designed to handle delicate materials in a safe way.





CONTROLS AT HAND

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PRODUCTION EQUIPMENT

CUTTING MACHINES

Our cutting machines precisely cut and position materials like encapsulant, backsheet, ribbon, and solar cells. Featuring advanced automation, they guarantee accuracy and efficiency, streamlining the assembly process.







STAND ALONE FOIL CUTTER

ECOCUT 20

A stand alone solution to prepare a preset amount of foils, cut and ready to be used.



DATASHEET & VIDEO



EASY & QUICK CHANGE OF THE CUTTING MEASURES



TECHNICAL DETAILS

Spool loading	Easy loading with crane
Custom settings	Adjustable from touch-screen
Material handling	Manual
Cutting	Automatic with piece counter
Ribbon exit	Kit for punching 3 holes for ribbon exit

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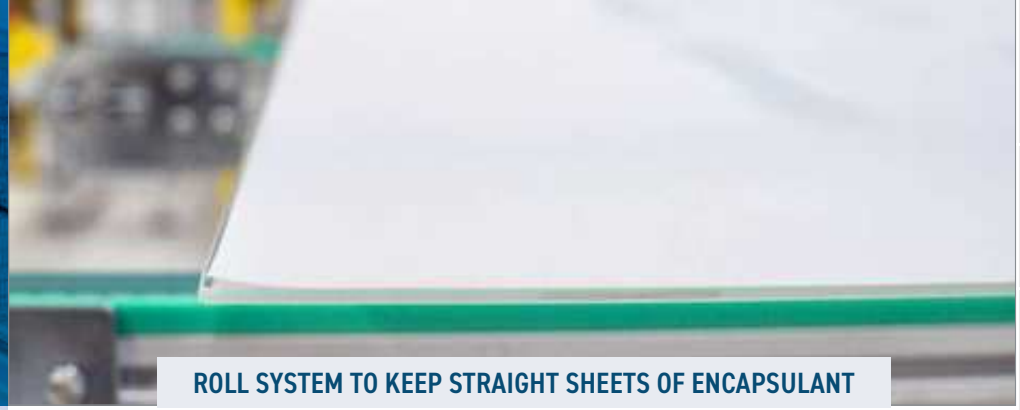
AUTOMATIC FOIL CUTTER

ECOCUT 20 A

An inline solution to cut and automatically lay the Encapsulant on top of the first glass.



DATASHEET & VIDEO



ROLL SYSTEM TO KEEP STRAIGHT SHEETS OF ENCAPSULANT



TECHNICAL DETAILS

Spool loading	Easy loading with crane
Custom settings	Adjustable from touch-screen
Material handling	Auto laying of foil holes on the exit ribbon
Cutting	Automatic with piece counter
Ribbon exit	Kit for punching 3 holes for ribbon exit

AUTOMATIC FOIL CUTTER PICK&PLACE

ECOCUT 20 AP

Integrated with Pick&Place, ideal to lay the foil precisely on top of the ribbon exits.



AUTOMATIC PICK & PLACE OF FOILS OVER GLASS



TECHNICAL DETAILS

Spool loading	Easy loading with crane
Custom settings	Adjustable from touch-screen
Material handling	Pick&Place for precise alignment
Cutting	Automatic
Ribbon exit	Kit for punching 3 holes for ribbon exit

DATASHEET & VIDEO

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AUTO FOIL CUTTER WITH DOUBLE SPOOL

ECOCUT 20 AP DOUBLE

A fully automatic solution with Pick&Place and two spool for alternate and continuous work.



DOUBLE SPOOL SYSTEM FOR EVA & BACKSHEET



DATASHEET & VIDEO



TECHNICAL DETAILS

Spool loading	Easy loading with crane
Custom settings	Adjustable from touch-screen
Material handling	Auto laying of foil holes on the glass
Material switch	Auto switch for encapsulant/backsheet
Spool centering	Automatic spool centering system

RIBBON CUTTING AND BENDING

ECOCUT & BEND

The ECOCUT & BEND is an automatic machine developed to cut the ribbon and bend it for head welding (bussing).



DATASHEET & VIDEO



CUT & BEND THE RIBBON





Custom cut & bend drawing

Customizable measurements of cut and bend. It is compatible with Ribbon, ribbon tape and small webbing.

TECHNICAL DETAILS

Cycle time	120 pcs/min
Counter	Automatic Piece counter
Position	Stand alone Offline

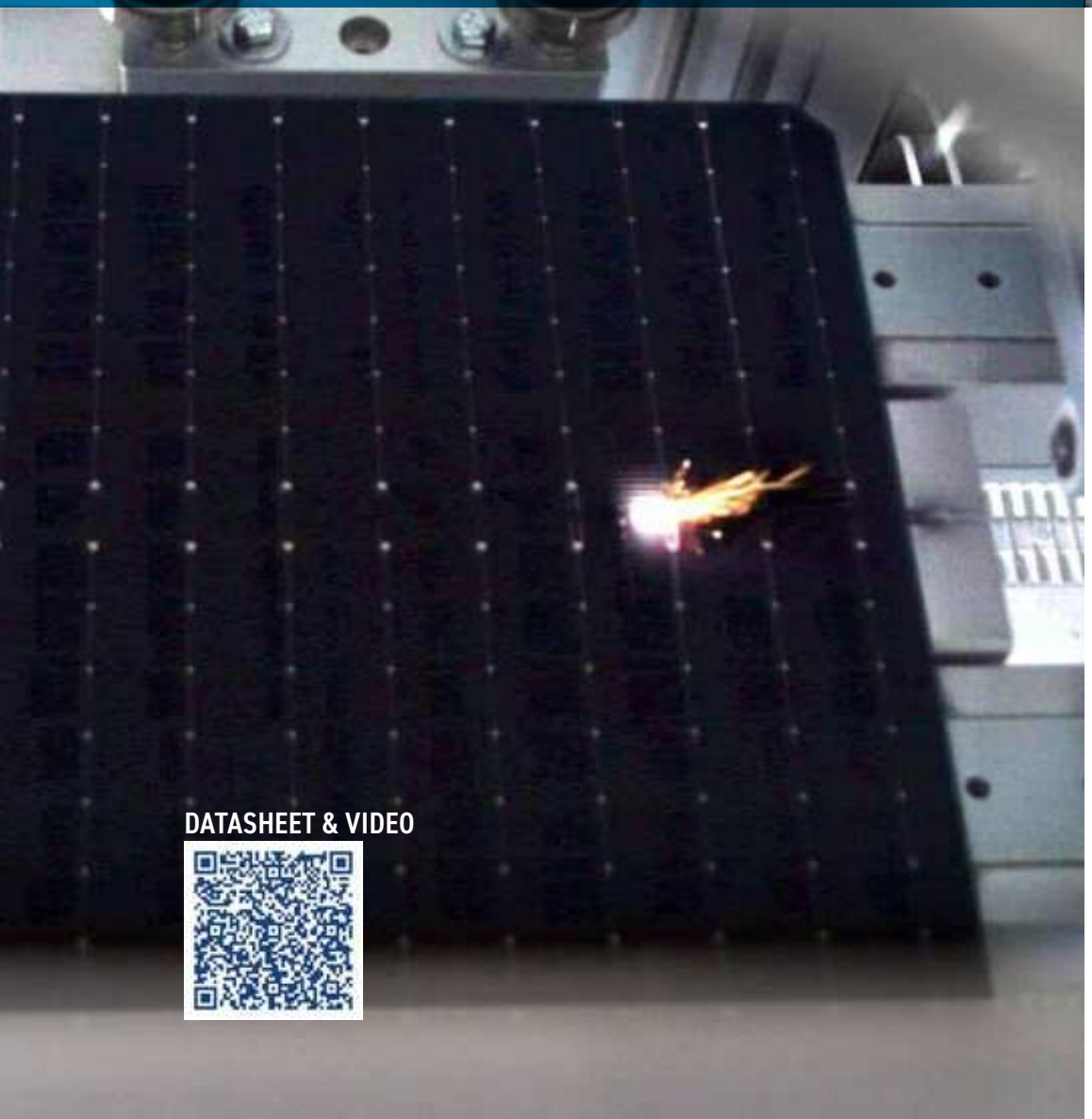
OPTIONAL MQTT

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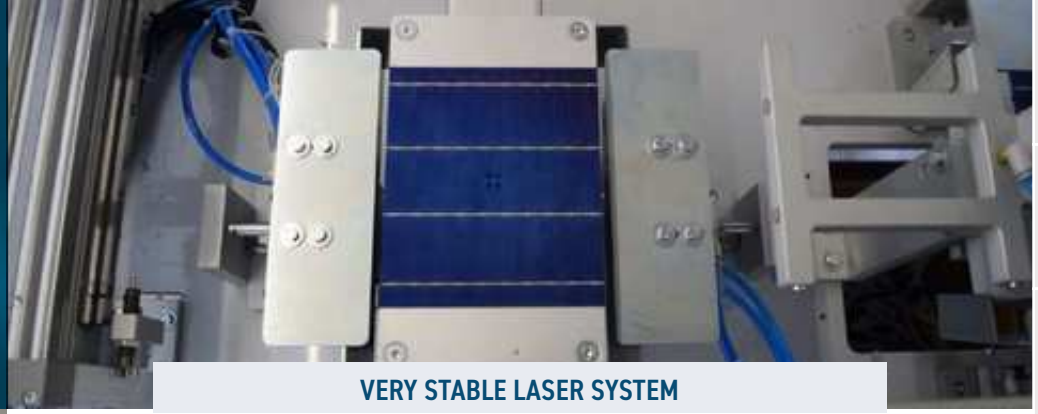
LASER CUTTER FOR SOLAR CELLS

ECOLAS CELL A

The ECOLAS is an advanced automatic laser scribing machine capable of managing up to 6000 cells/hour.



DATASHEET & VIDEO

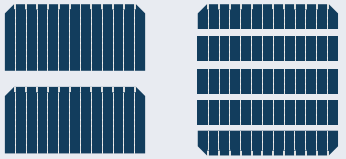


VERY STABLE LASER SYSTEM



Custom cut drawing

Configure the drawing from the dedicated computer.



It supports all standard solar cells which are compatible with the stringer machines. It can also work with an Automatic Guided Vehicle (AGV) management system for efficient workflow optimization.

TECHNICAL DETAILS

Grip system	Vacuum
Max Cell size	210 x 210 mm
Laser	50 W fiber with optical isolation

OPTIONAL MQTT

PRODUCTION EQUIPMENT

BUFFER SYSTEMS

Our buffer systems serve as versatile temporary storage for solar panels, ensuring continuous production without bottlenecks. These systems vary in size, shape, and function, adapting to diverse operational needs.






ECOPROGETTI
SPECIALIST IN PHOTOVOLTAIC
PRODUCTION PROCESS

LAST IN FIRST OUT MODULE STORAGE

BUFFER LIFO 30

Designed to prevent production bottlenecks, ensures steady workflow; ideal for handling delicate materials like glass panels.

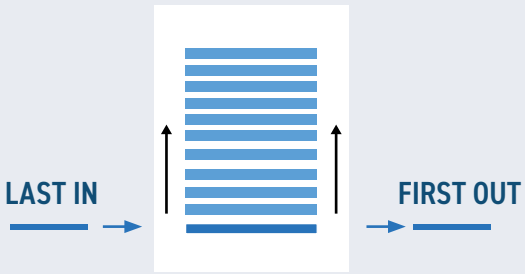


DATASHEET & VIDEO



IDEAL TO AVOID ANY BOTTLE NECK





TECHNICAL DETAILS

Orientation	Long edge forward
Configuration	Last in First out
Dimension	2200 x 2750 x 4000 mm

MODEL TYPE	STORAGE SLOTS
BUFFER LIFO 10	10 modules
BUFFER LIFO 30	30 modules (Optional 50)

OPTIONAL MQTT

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FIRST IN FIRST OUT MODULE STORAGE

BUFFER FIFO 15

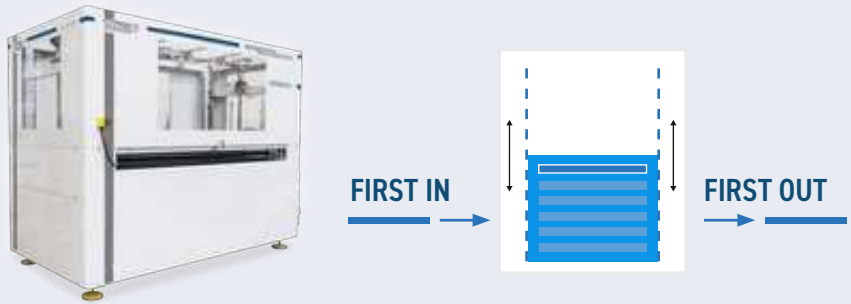
Smaller, efficient storage system with soft plastic covers; perfect for handling delicate materials in compact spaces.



DATASHEET & VIDEO



SMART & COMPACT SOLUTION



TECHNICAL DETAILS

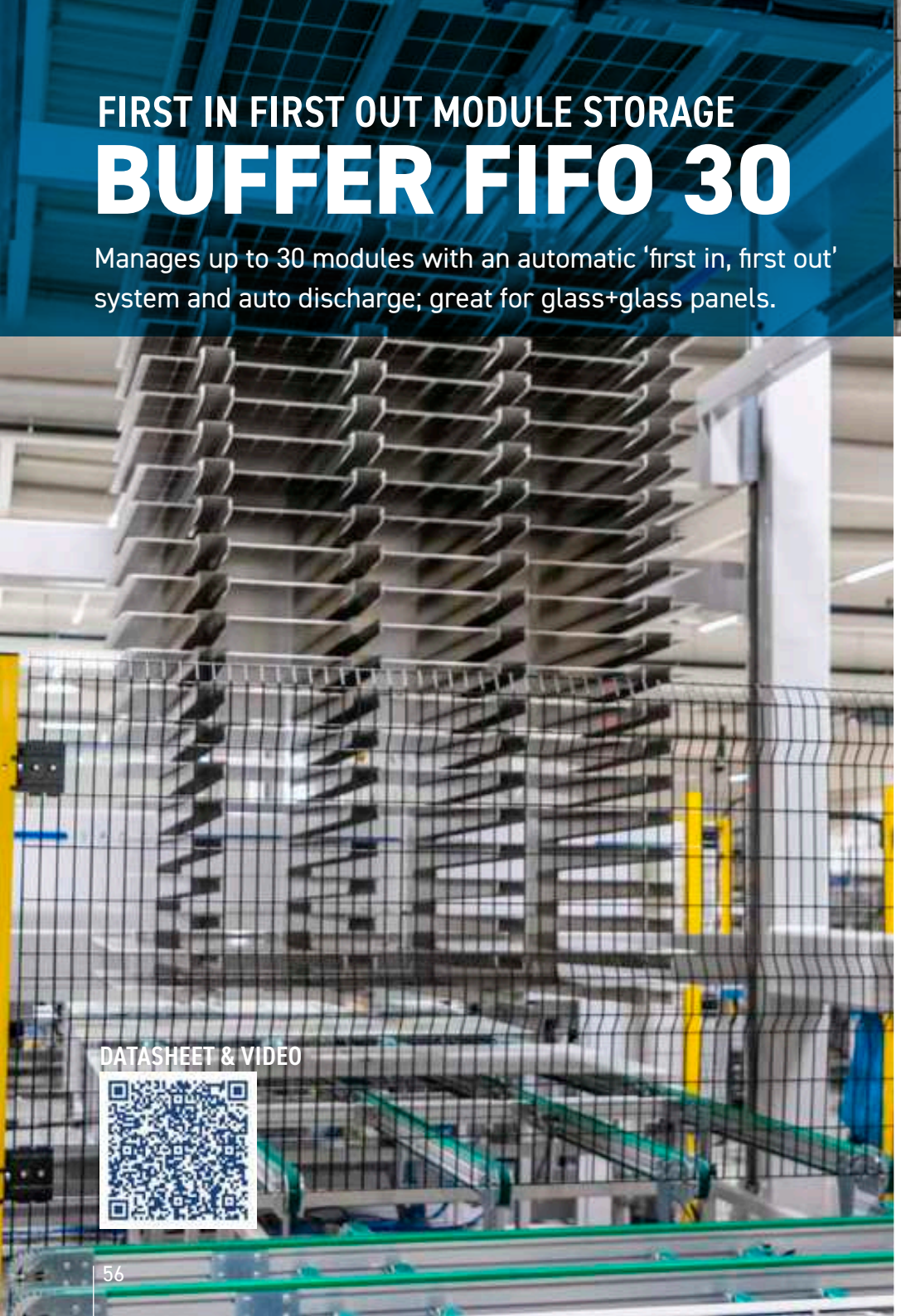
Orientation	Long edge forward
Configuration	First in First out
Stacking capacity	15 modules
Function	Adjustable timing for automated panel discharge feature
Dimension	2000 x 3900 x 2500 mm

OPTIONAL MQTT

FIRST IN FIRST OUT MODULE STORAGE

BUFFER FIFO 30

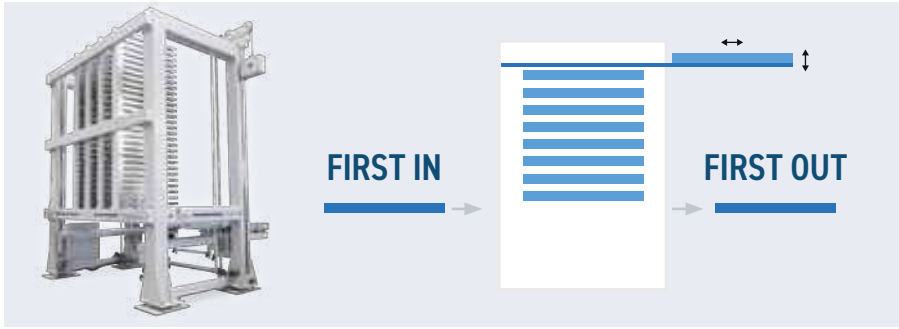
Manages up to 30 modules with an automatic 'first in, first out' system and auto discharge; great for glass+glass panels.



DATASHEET & VIDEO



BALANCE PRODUCTIVITY



MAIN FEATURE

AVOIDS EXPIRATION OF RAW MATERIALS

TECHNICAL DETAILS

Handling system	Automatic Axis Pick&Place
Configuration	Long edge forward
Stacking capacity	30 modules (Optional 50)
Function	Adjustable timing for automated panel discharge feature
Dimension	3600 x 4500 x 4600 mm

OPTIONAL MQTT

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CURING STATION WITH PICK&PLACE

ECOCURING

An automated station for silicone reticulation in j-boxes and frames, featuring modular belts for efficient transport.



CURING TIME SETTABLE IN THE RECIPE



Allows the silicone to reticulate ensureing that the components won't move at the next production stages.



ALTERNATED POSITIONING



WITH PICK&PLACE SYSTEM

DATASHEET & VIDEO

TECHNICAL DETAILS

Stacking capacity	Up to 30 stacks of modules
Stacking height	1650 mm (33 modules of 45 mm)
Length of curing	Depends on throughput of production

OPTIONAL

- Spacers between frameless panels
- Frameless panels stacking capability
- MQTT

PRODUCTION EQUIPMENT

FULLY ELECTRIC LAMINATORS

Ecoprogetti's fully electric laminators, crucial for photovoltaic panel production, facilitate the encapsulating material's polymerization. This pivotal process, transforming layers into a cohesive unit, is vital for panel longevity. Featuring a user-friendly touchscreen and precise temperature control across multiple zones, these laminators ensure the highest quality solar panels.




ECOPROGETTI

FULLY ELECTRIC LAMINATORS

ECOLAM MAX

The ECOLAM MAX is an automated laminator capable of handling both standard and special PV panel designs. It features a fully electric and fully automatic lamination cycle, and includes an interactive touchscreen for monitoring and adjusting temperature and vacuum settings.

5 PANELS CYCLE



ECOLAM MAX 5

DATASHEET & VIDEO

4 PANELS CYCLE



ECOLAM MAX 4

DATASHEET & VIDEO

3 PANELS CYCLE



ECOLAM MAX 3

DATASHEET & VIDEO



STRONG VACUUM SYSTEM



FULLY ELECTRIC LAMINATOR



ACCURATE TEMPERATURE CONTROL

TECHNICAL DETAILS

	ECOLAM MAX / ECOLAM 2500
Laminable area of 1 plate	2300 x 1350 mm; 2550 x 1450 mm
Temprature control	±2 C°, 3 temp. control areas per plate
Power source	Electricity
Vacuum	<1 mbar in ~ 100 sec
Recipe control	User Friendly Touchscreen
Temperature uniformity	6 temperature control sensors and PID control per plate





OPTIONAL MQTT

HIGHLIGHTS

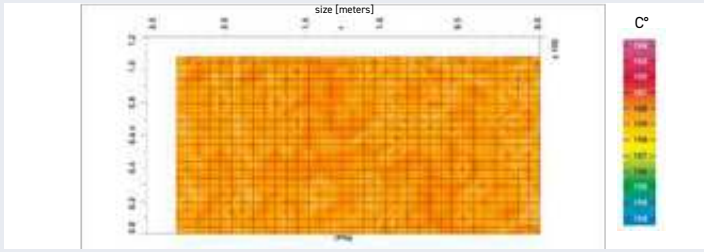


Customizable up to 250mm chamber height (VIPV)

COMPATIBLE WITH

- GLASS+GLASS
- BACKSHEET + GLASS
- FIBER GLASS
- BACKSHEET + FRONTSHEET
- THIN-FILM
- CUSTOM REQUEST

Guaranteed temperature uniformity over the complete plate of the laminator.



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HIGH CAPACITY FULLY ELECTRIC LAMINATORS

ECOLAM 2500

The ECOLAM 2500 is the upgrade of the ECOLAM MAX evolving in size, adding temperature controls and accuracy, reducing cycle times and encapsulant leakage while optimizing great vacuum quality.

TECHNICAL DETAILS

Laminable area of 1 plate	2550 x 1450 mm

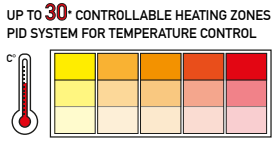
EXCELLENT VACUUM QUALITY IN NO TIME

Deep, fast vacuum to prevent bubbles and reduce delamination risks:
- Final Vacuum level <1 mbar*;
- Vacuum: <1 mbar in approx. 100 sec.

*if provided of Booster pump

BETTER ZONAL TEMPERATURE CONTROL

With 6 temperature sensors and 6 PID control per plate features a highly reactive heating system for swift temperature adjustments.



*30 control areas in Ecolam 2500 5 DS

The image shows a: Ecolam 2500 5 DS

DATASHEET & VIDEO

LESS MAINTENANCE

The optimizations made on the conveyors and membrane minimizes the amount of encapsulant leakage.

TOP PERFORMANCE COOLING PRESS

With Ecoprogetti's cooling press your panels will go from laminator's temperature to ambient 35°C in less than 8 minutes. Ensuring a consistent and reliable performance at all times.

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ECOLAM 2500 IN STACKED CONFIGURATION

STACKED

The STACKED version of the ECOLAM enhances operational efficiency by doubling the laminating capacity in half the usual space. It features improved control systems that streamline production and maintain high-quality standards.

DOUBLE THE EFFICIENCY IN HALF THE SPACE

The ECOLAM STACKED laminators double production capacity by stacking multiple levels, efficiently reducing the required space.

SUITABLE ALSO FOR
GLASS GLASS

VACUUM 150 MBAR IN
60sec

TOTAL CHAMBER LAMINATION AREA
2.5 x 7.2 m

MODEL TYPE	2 CHAMBERS 2 STACK
ECOLAM 2500 3	12 mod/cycle
ECOLAM 2500 4	16 mod/cycle
ECOLAM 2500 5	20 mod/cycle



STRUCTURED FOR MODULARITY

Connectors on laminator side walls allow faster and easier installation.

AUTOMATIC CONVEYOR LIFTING SYSTEM

Work on 2 levels with the help of an automatic conveyor lifting system.

BETTER AND MORE ACCURATE TEMPERATURE UNIFORMITY

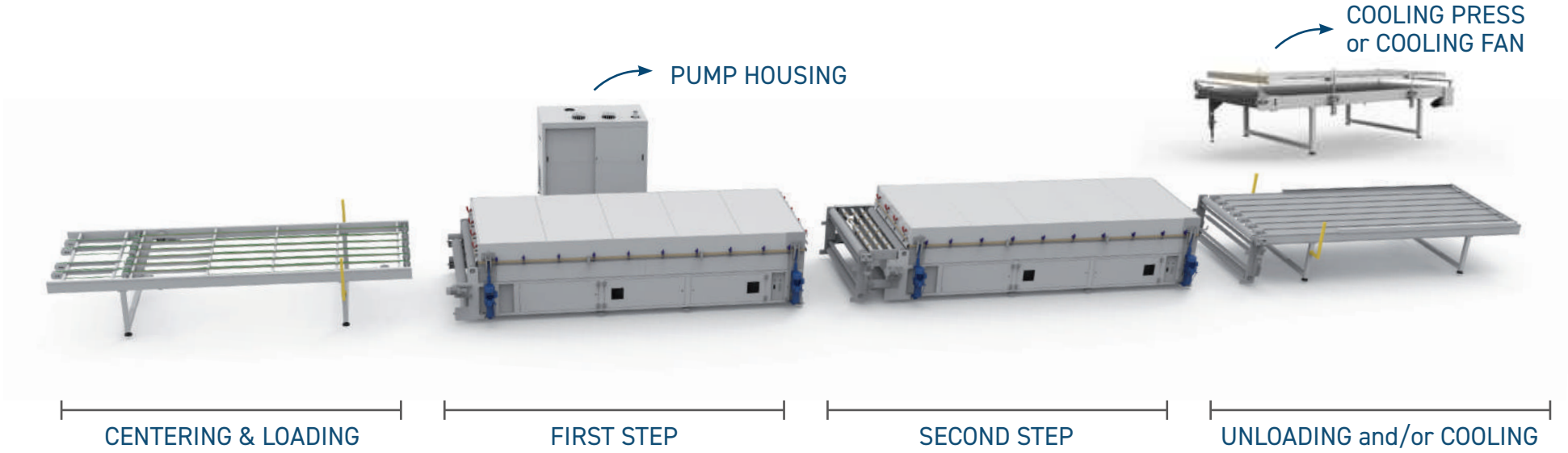
The ECOLAM STACKED is able to reach the set temperature in less then 30 min*.
Its uniformity is among the best on the market with a temperature accuracy of +/- 2° C.

*Depends by environmental conditions and size of the laminator.

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DOUBLE STEP LAMINATION

The double-step laminators, mirroring Ecolam 3-4-5's features, split the cycle into pumping and curing phases to double production capacity. They ensure uniform EVA gel content and feature automatic teflon release sheets, making them ideal for enhancing capacity in compact spaces. This solution is adaptable across the Ecolam series.

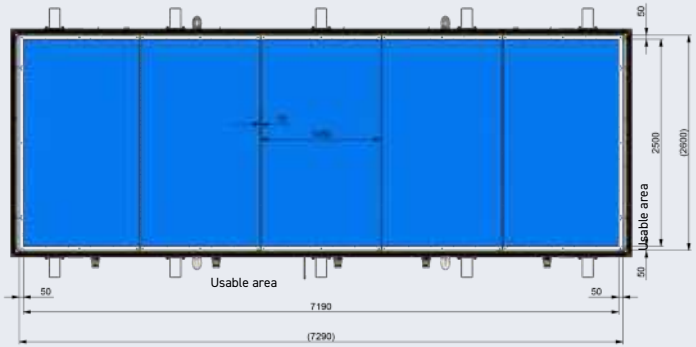


Double Step = DS

PANELS/CYCLE	
ECOLAM 3 DS	3 X 2
ECOLAM 4 DS	4 X 2
ECOLAM 5 DS	5 X 2

ECOLAM 2500 5 DS

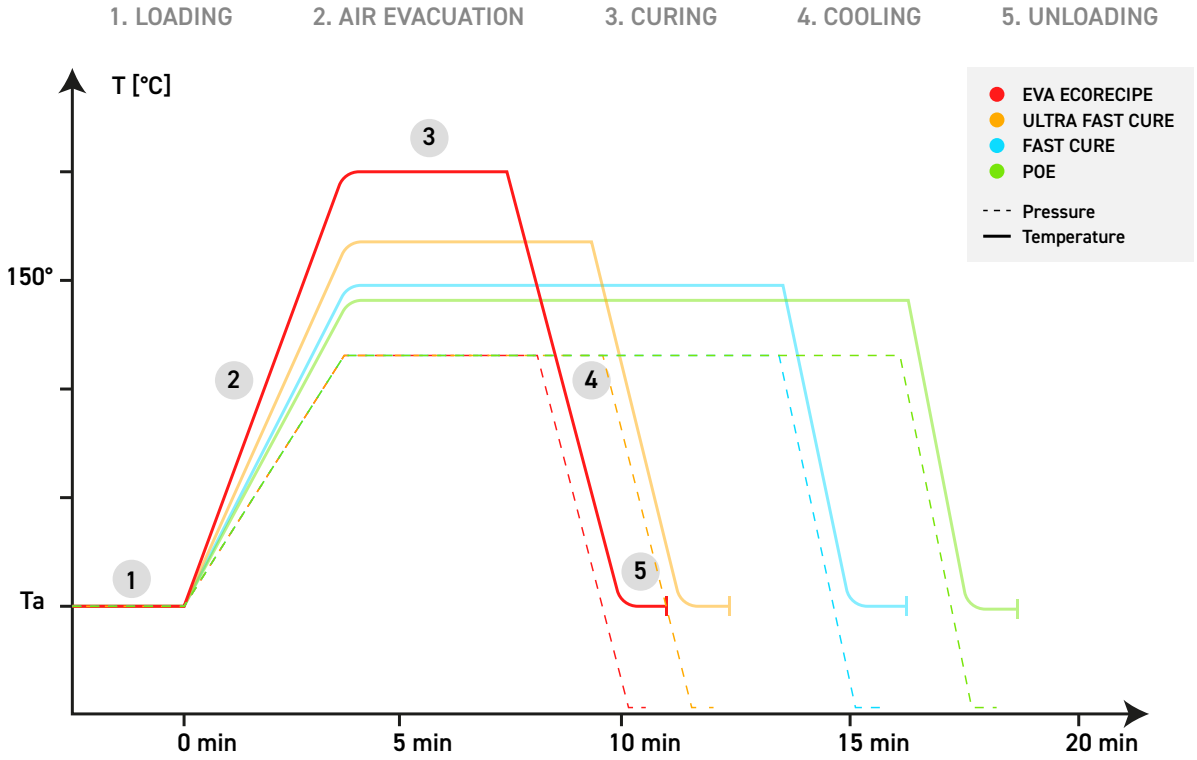
- TOTAL AREA: 2600 x 7290 mm
- UP TO 10 MODULES/CYCLE
- MEMBRANE CHANGE IN <30 min
- CHAMBER HEIGHT: 35 mm (Optional 150 mm)



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THE LAMINATION CYCLE

The nature of different raw materials results in varied lamination times, a characteristic that, as a consequence, influences the cycle durations in the production process.



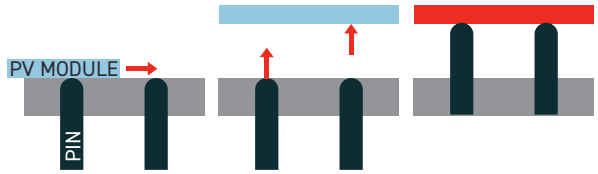
LAMINATOR PRODUCTIVITY

	Modules/cycle	POE 17,5'	EVA FAST CURE 15'	EVA ULTRA FAST CURE 12'	EVA ECORECIPE 10'
Ecolam 3	3	10,2 mod/h	12 mod/h	15 mod/h	18 mod/h
Ecolam 4	4	13,7 mod/h	16 mod/h	20 mod/h	24 mod/h
Ecolam 5	5	17,1 mod/h	20 mod/h	25 mod/h	30 mod/h
Ecolam 3 DS	3x2	20,5 mod/h	24 mod/h	30 mod/h	36 mod/h
Ecolam 4 DS	4x2	27,4 mod/h	32 mod/h	40 mod/h	48 mod/h
Ecolam 5 DS	5x2	34,2 mod/h	40 mod/h	50 mod/h	60 mod/h
Ecolam Stacked	5x4	68,4mod/h	80 mod/h	100 mod/h	120 mod/h

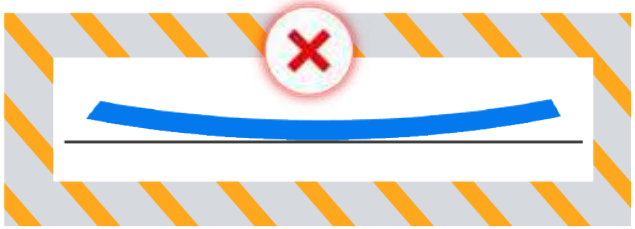
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ACTIVE PIN LIFT SYSTEM

The Ecolam incorporates an active pin lift system elevating modules to preheat and maintain steady heating plate temperatures. This minimizes bowing risk and ensures uniform temperature, ideal for glass-glass modules and BIPV.



NO BOWING EFFECT



ELECTRICAL HEATING

The ECOLAM series features a complete electrical heating system for optimal temperature uniformity and quick response. With a three-zone division per plate and dedicated PID calculations for each, it ensures superior control and even heat distribution throughout the laminator.

SUITABLE FOR DIFFERENT ENCAPSUANTS

ECOLAM software enhances flexibility by allowing users to customize and store lamination parameters for different encapsulant materials and module sizes. These tailored 'recipes' are easily accessible for efficient and optimal lamination processes.

ENCAPSULANTS

- EVA
- POLYOLEFIN (POE)
- PVB
- TPO

BIPV SOLUTIONS

The Building Integrated Photovoltaics (BIPV) system consists of integrating photovoltaics modules into the building envelope, such as a roof or a facade.
By simultaneously serving as building envelope material and power generator, BIPV systems can provide savings in materials and electricity costs, reduce use of fossil fuels and emission of ozone depleting gases, and add architectural interest to the building.



MADE BY ISSOL WITH ECOPROGETTI'S EQUIPMENT



MADE BY ISSOL WITH ECOPROGETTI'S EQUIPMENT



GLASS GLASS MODULES

In terms of mechanical strength, a module design with two glasses of the same thickness is ideal, Ecoprogetti has designed a laminator that can process Glass Glass modules obtaining the highest quality, reliability through time and efficiency.

GLASS GLASS MODULE

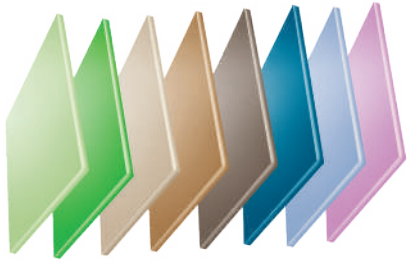


ULTRALIGHT FLEXIBLE GLASSLESS MODULE



SUITABLE FOR COLORED GLASSES

The Ecolam series is suitable for colored glasses, very much adapt to architectural purposes.



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EXTERNAL PUMP HOUSING

The ECOLAM series features an external pump housing, installable up to 15 meters from the laminator. This reduces noise and facilitates maintenance access. It includes a rotary oil pump and a condensation filter.

- **Final vacuum level <1 mbar***
- **Vacuum: 150 mbar in approx. 60 sec**
- **Vacuum: <1 mbar in approx. 100 sec**
- **Low noise level**
- **Easy maintenance**
- **Double pump Optional**



*if provided of Booster pump

QUICK CLAMP SYSTEM

Less maintenance = Higher productivity.
A quick change system of the silicone membrane is installed in the laminators. With this system the membrane change is done in less than 30 minutes and the change can be performed with the plates still in working temperature. A long life of the membrane is guaranteed (Min. 3000 cycles).



COOLING PRESS

The cooling press is a system that quickly cools down the module after the lamination process. The system gradually presses the laminated module and allows to keep its straight form avoiding deformation and correctly cooling it down by dedicated chillers.



COOLING FAN

A cooling system can be installed over the unloading belt. The cooling unit works with forced air, cooling down the laminated modules to a temperature of 35°C in <8 min



HIGH GEL CONTENT RESULT

A high and uniform gel content of the laminated EVA is a quality assurance which guarantees a long life of the PV module. Thanks to controllable temperature areas, the ECOLAM series guarantees an uniform and high percentage of the gel content.



EASY RECIPE MANAGEMENT

Each encapsulate material and each module size require specific lamination parameters. For this reason the software of ECOLAM permits to create differrent recipes for the setting of these parameters. The recipes are stored and recalled when necessary.



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PRODUCTION EQUIPMENT

TRIMMING & FRAMING

Ecoprogetti offers a selection of trimming and framing machines suitable for various automation levels. Our trimmers quickly remove excess materials such as encapsulant and back-sheet residues from panels after lamination. For framing, specialized machines apply silicone to aluminum frames which are then assembled with the pv panel for precise, secure fitting.







MULTI PURPOSE ROTATING WORK TABLE

ECOMULTISTATION

A versatile motorized work station designed for diverse production tasks, featuring a lift & rotate function.



DATASHEET & VIDEO



COMPACT MOTORIZED SOLUTION

HIGHLIGHTS



DESIGNED FOR FLEXIBILITY



TECHNICAL DETAILS

Handling system	Pneumatic lifter with vacuum system
Configuration	Rotation 360° or 180°
Lifting controls	Pedal control

PRODUCTION OPERATIONS

1. Manual Bussing
2. Manual trimming
3. Edge/String taping
4. Quality controls
5. J-box potting & soldering
6. Cleaning station

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FULLY AUTOMATIC TRIMMING STATION

ECOTRIM A

Fully automatic solution for precision edge-cutting of waste material from the PV modules after lamination.

DATASHEET & VIDEO



PRECISION PV TRIMMING FOR PV MODULES

HIGHLIGHTS

Compatible with standard glass-backsheet, glass-glass, and glass-less modules, it ensures efficiency & precision.

DURABLE BLADES



DEDICATED WASTE BINS



TECHNICAL DETAILS

Compatibility	Glass+Backsheet; G+G;
Cycle time	<30 sec (<20 sec in GW line and above)
Length of curing	Settable for different mobule sizes
Waste management	Dedicated bins inside the machine

OPTIONAL

- Automatic waste disposal
- MQTT

AUTOMATIC SILICONE DISPENSER

ECOSIL 14

This automatic machine was designed to precisely apply silicone or two-component glue to frames used in PV modules.



DATASHEET & VIDEO



COMPATIBLE WITH SILICONE OR BICOMPONENT

HIGHLIGHTS





SILICONE PUMP
ECOSIL 03

The machine is manually loaded with a stock of frames which is then processed and picked up:

1 MANUALLY BY OPERATOR



model: ECOSIL 14

2 AUTOMATICALLY BY ROBOT



model: ECOSIL 14 A

TECHNICAL DETAILS

Throughput	240 frames/hour
Silicone	Silicone or Bicomponent silicone

OPTIONAL

- Bigger drum possibility (Up to 200l)
- MQTT

AUTOMATIC EDGE TAPING MACHINE

ECOTAPE A

A fully automatic tape applicator for PV panel edges, replacing common silicone dispensers before framing.



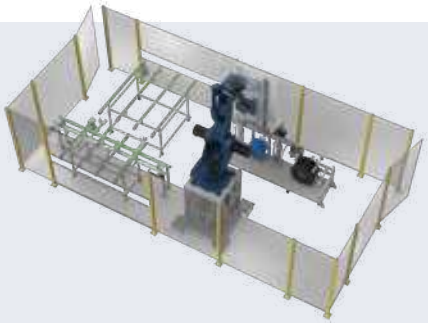
DATASHEET & VIDEO



SPECIAL TAPE AROUND THE EDGES OF THE PANEL

HIGHLIGHTS

It leaves no residue on panels or surfaces, ensuring a clean work environment without curing times.



The taping operation is performed by a 6 axis robot that works between the tape unwinding unit and the PV panel.

ALTERNATED POSITIONING



TAPE UNWIDING UNIT



TECHNICAL DETAILS

Compatibility	Biadhesive tape
Tape width	16 mm to 22 mm

OPTIONAL

- Tape size
- MQTT

CORNER CHAMFERING MACHINE

ECOGRINDING

This machine was designed for refining framed PV modules by smoothing their four corners and collecting the waste.





COMPATIBLE WITH SILICONE OR BICOMPONENT

HIGHLIGHTS

It improves installer safety by reducing cut risks and preventing panel edges from damaging packaging.



WITH ASPIRATORS



SAFE EDGE CHAMFERING



TECHNICAL DETAILS

Method	Motorized sand paper
Waste	Managed with vacuum system
Automation	Automatic Loading/Unloading/Centering

OPTIONAL

- Custom Panel size
- MQTT

DATASHEET & VIDEO

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INLINE HORIZONTAL FRAMING MACHINE

ECOFRAME HA

An automatic framing station designed to execute both punching and crimping operations on aluminum frames.



DATASHEET & VIDEO



MANUAL LOADING/UNLOADING OF THE FRAMES

HIGHLIGHTS

The standard configuration frames one module size but can adapt to additional sizes within a specific range.



TOUCHSCREEN CONTROLS



CRIMPING & PUNCHING



TECHNICAL DETAILS

Compatibility	Silicone or tape framing
Frame sizes	min 650 x 850 mm max 2500 x 1400 mm

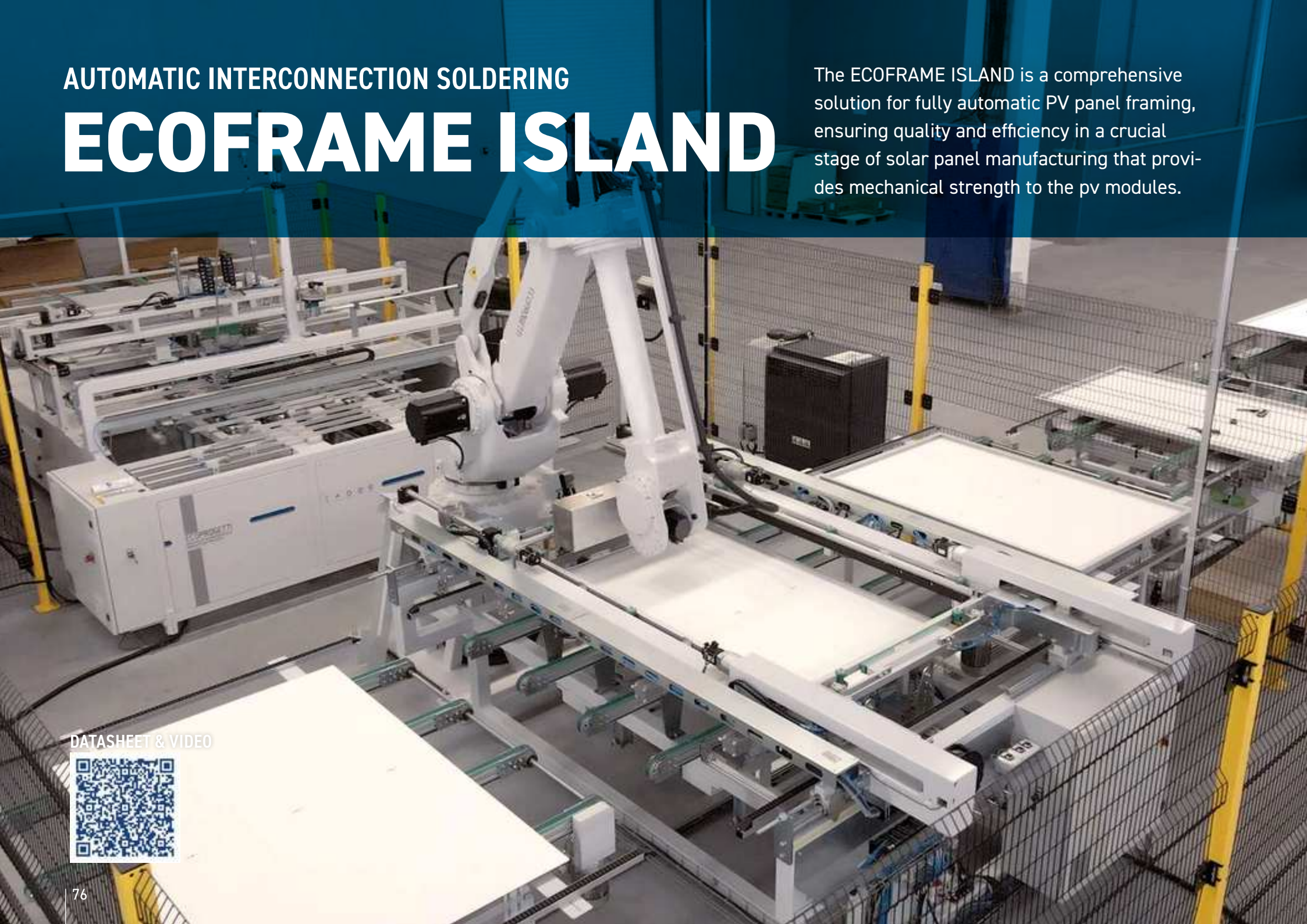
OPTIONAL

- Custom Panel size
- MQTT

AUTOMATIC INTERCONNECTION SOLDERING

ECOFRAME ISLAND

The ECOFRAME ISLAND is a comprehensive solution for fully automatic PV panel framing, ensuring quality and efficiency in a crucial stage of solar panel manufacturing that provides mechanical strength to the pv modules.



DATASHEET & VIDEO



1 FRAME STORAGE



2 SEALANT DISPENSING



3 ROBOT HANDLING



4 FRAMING PROCESS

1 FRAME STORAGE

Frames are stored, auto-centered and moved to the processing area.



FRAME BUFFER A

2

- For silicone, frames are aligned under a silicone/glue dispensing gun.
- For tape, the panel is taken by the robot and taped around the edges. Requires taping system “ECOTAPE A”.



ECOSIL 14 A

3 ROBOT FOR FRAMES LAYUP

The robotic arm moves the frames to the framing station.



6 AXIS ROBOT

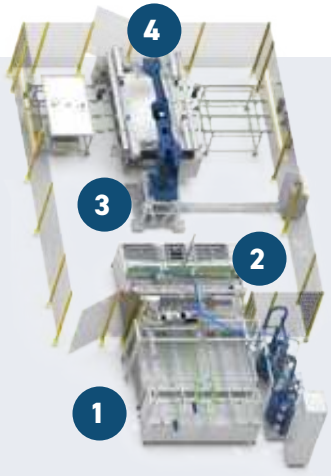
4 FRAMING AND PUNCHING

Pushing the frames against the glass edges followed by corner punching.



ECOFRAME HR

HIGHLIGHTS



WORKS WITH:

SILICONED FRAMES

TAPED FRAMES

CYCLE TIME

< 18 SEC/MODULE

Punching on long side and short size simultaneously.



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PRODUCTION EQUIPMENT

J-BOX MACHINES

Junction box machines facilitate the application and connection of junction boxes by adhering them to the module using appropriate silicone or glue, the most advanced ones can also establish an electronic link between the ribbon and the cables of the junction box.







SILICONE DISPENSING STATION FOR J-BOXES

ECOJ-BOX S

A semi-automatic station engineered to precisely dispense an even amount of silicone onto the junction box.

DATASHEET & VIDEO



MANUAL J-BOX HANDLING

HIGHLIGHTS

The offered solution is compact and features electric safety barriers, ensuring the protection and safety of operators at all times.



PLASMA GUN AVAILABLE



SILICONE FOR 3 J-BOX



TECHNICAL DETAILS

Compatibility	Adjustable to any j-box type
Dispenser	High pressure and durable vales, uniform silicone dispensing
Version available	Cartridges and Foilbags

OPTIONAL

- Custom J-box
- MQTT

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AUTOMATIC J-BOX SILICONE DISPENSING

ECOJ-BOX A

Automatic silicone dispensing for junction boxes, featuring an XY robot and a conveyor belt for efficient handling.

DATASHEET & VIDEO



AUTOMATIC DISPENSING, ONE J-BOX AT A TIME

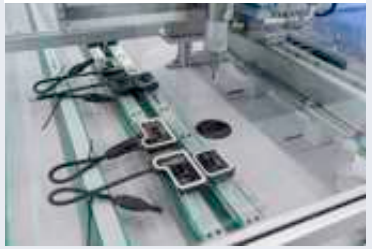
HIGHLIGHTS

It enhances accuracy, reduces sealant waste and production costs, and is adaptable to various j-box types and models.



SILICONE PUMP
ECOSIL 03

PROCESS 3 J-BOXES AT A TIME



MANUAL APPLICATION



TECHNICAL DETAILS

Compatibility	Adjustable to any j-box type
Dispenser	High pressure and durable vales, uniform silicone dispensing

OPTIONAL

- Custom j-box
- MQTT

FULLY AUTOMATIC J-BOX STATION

ECOJ-BOX R

The ECO J-BOX R is an automated station designed for efficient and comprehensive management of junction boxes. It handles everything from preparation to application, including the soldering process that establishes the final electrical connections of the panel.



DATASHEET & VIDEO

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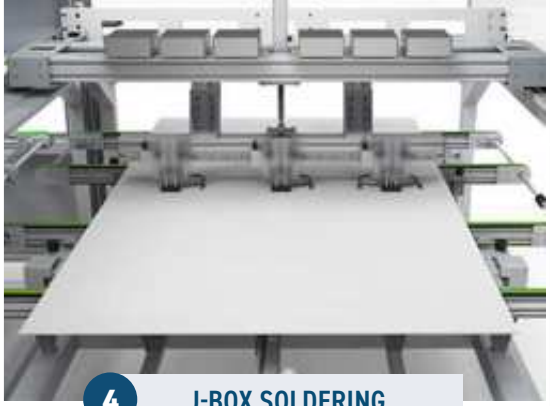
1 RIBBON RAISING



2 SILICONE DISPENSING



3 AUTOMATIC BIN PICKING



4 J-BOX SOLDERING

1 RIBBON RAISING

The ribbon carrying the electrical connections of the panel is automatically raised in preparation for positioning the j-box on top of it.

2 SILICONE DISPENSING

A simultaneous and correct dispensing of silicone is perfomed on the panel where the j-boxes are going to be placed.

3 AUTOMATIC BIN PICKING & J-BOX POSITIONING

An innovative, first-of-its-kind system identifies and picks up the j-boxes, which are then handled by a robotic arm and brought to the panel for final positioning.

4 J-BOX SOLDERING

The connections between the junction boxes and the panel are then soldered using patented technology from Ecoprogetti, completing this stage and preparing the panel for the next step in the manufacturing process.

OPTIONAL

- MQTT

HIGHLIGHTS



WORKS WITH:
ANY J-BOX TYPE

CYCLE TIME
< 18 SEC/MODULE

Complete junction box management.



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FULLY AUTO POTTING STATION FOR J-BOXES

ECOPOTTING A

It dispenses bicomponent silicone into three centralized j-boxes, quickly and without any waste of material.



DATASHEET & VIDEO



PROVIDES INSULATION AND PROTECTION

HIGHLIGHTS

WHY IS POTTING SO IMPORTANT?

Potting in PV junction boxes protects against environmental damage, manages heat, and enhances durability.



WORKS WITH THREE J-BOXES



WITH DEDICATED HMI



TECHNICAL DETAILS

Compatibility	Quickly adjustable to any j-box type
Dispenser	High pressure and durable vales, uniform silicone dispensing

OPTIONAL

- MQTT

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SEMI-AUTOMATIC SILICONE DISPENSING

ECOPOTTING TOOL

This semi-automatic potting machine offers precise dispensing, ideal for small to medium-sized production lines.



DATASHEET & VIDEO



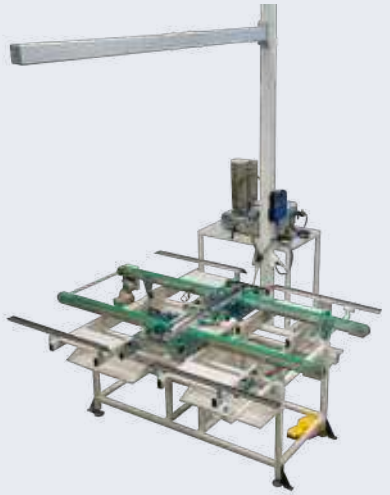
MANUAL DISPENSING OF SILICONE IN J-BOXES

HIGHLIGHTS

This ergonomic semi-automatic potting machine features a user-friendly design for simple and efficient operation.

EXAMPLE OF CURED SILICONE





TECHNICAL DETAILS

Compatibility	Compatible with any j-box type
Dispenser	One Operator

OPTIONAL

- MQTT

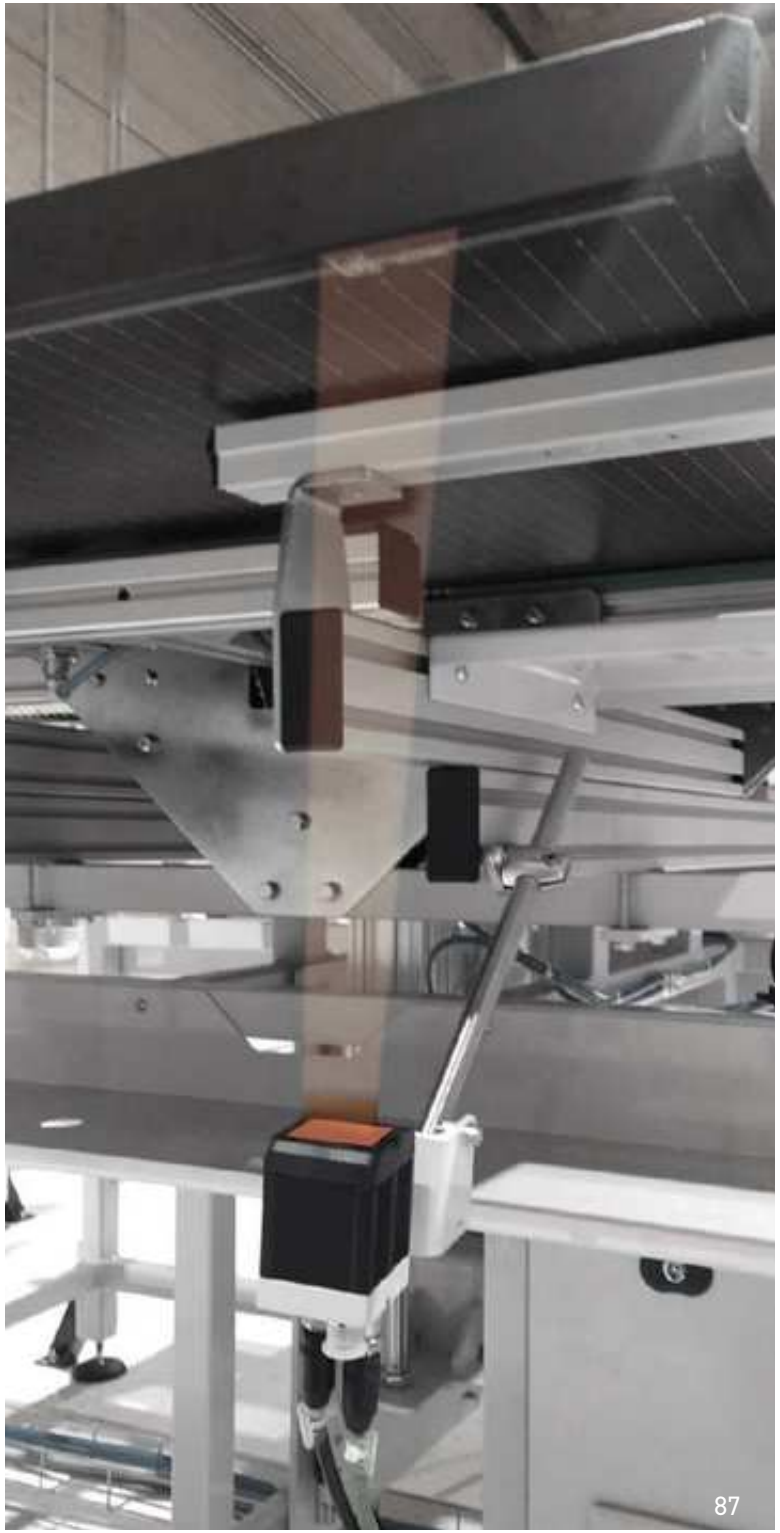
PRODUCTION EQUIPMENT

TRACEABILITY
SORTING & PACKING

Full range of traceability systems, sorting and packing in production lines, improving efficiency and ease of operations. The offerings include labeling machines, glass and frame laser markers for datamatrix and fully automated solutions for sorting and packaging PV panels based on quality inspection results.







AUTOMATIC PACKAGING & SORTING SYSTEM

ECOPACK R

An automated packaging station featuring a 6-axis robot and a vacuum system for efficient sorting of the PV modules.



SPECIAL VACUUM SYSTEM TO HANDLE THE MODULES

HIGHLIGHTS

HOW SHOULD YOU PACK? UP TO YOU!

The sorting of PV modules is automatically executed by sophisticated software that sorts the panels based on the results received from the testing machines.

HORIZONTAL



HORIZONTAL FLAT



VERTICAL



TECHNICAL DETAILS

Compatibility	Any type of PV panel (G+G; G+B; etc...)
Sorting	Fully automatic based on power class
Sorting	From 4 to 6 pallets depending on the module's size and facility's size
Storage	Positioned in pallets ready for shipment

OPTIONAL

- MQTT

DATASHEET & VIDEO

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FULLY AUTOMATIC CORNERS PLACER

ECOPACK CORNERS

The ECOPACK CORNERS is a fully automatic machine designed to apply packaging corners to the panels angles.

DATASHEET & VIDEO



MANUAL DISPENSING GUN FOR J-BOXES

HIGHLIGHTS

WHAT ARE PACKING CORNERS FOR?

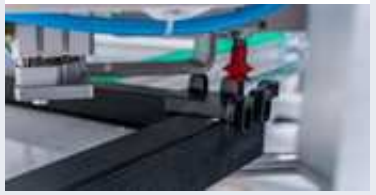
Applying plastic or cardboard corners to PV panels prevents scratches, facilitates stacking by interlocking the panels, and enhances packaging safety and efficiency.



CARDBOARD CORNERS



PLASTIC CORNERS



TECHNICAL DETAILS

Compatibility	Customizable corner type (plastic, cardboard or else)
Notice	Pre-alarm end corner pieces

OPTIONAL

- MQTT

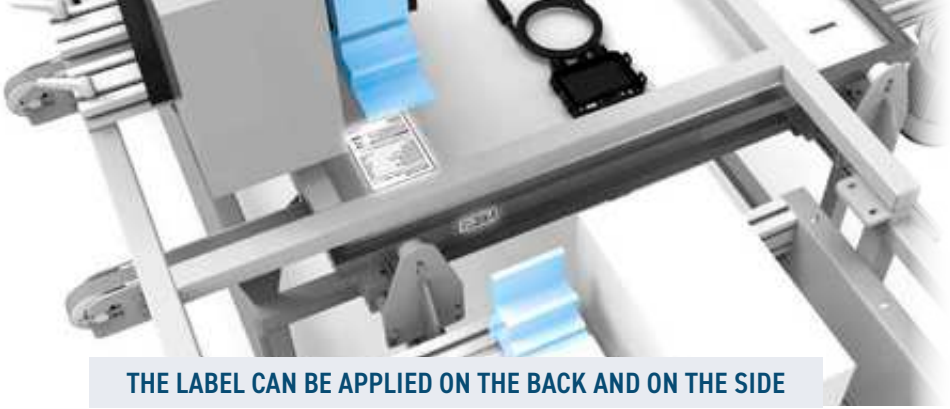
FULLY AUTOMATIC LABELLING STATION

ECOLABELLING

An automated machine designed to apply adhesive labels to both the frame side and the rear side of PV panels.



DATASHEET & VIDEO



THE LABEL CAN BE APPLIED ON THE BACK AND ON THE SIDE

HIGHLIGHTS

WHAT ARE LABELS FOR?

They provide key details about the panel and producer, enabling product identification and traceability.



CUSTOM LABEL SIZE



CUSTOM LABEL POSITION



TECHNICAL DETAILS

Label size	Min: 26 x 107 mm Max: 15 x 990 mm
Resolution	300 dpi
Mode	Thermal transfer

OPTIONAL

- MQTT

LASER SCRIBER FOR GLASS & FRAME

ECOMARKER

The ECO MARKER GLASS & ECO MARKER FRAME are machines built to mark codes (Datamatrix) onto glass or frames.



DATASHEET & VIDEO



TRACKING CODE MARKED ON GLASS AND ON FRAME

HIGHLIGHTS

WHY USING LASER MARKING FOR TRACEABILITY?

Using a laser instead of a labeling machine reduces waste, eliminates ink usage, and ensures traceability marks won't fade away.



ECOMARKER GLASS



ECOMARKER FRAME



TECHNICAL DETAILS

Laser for Glass	CO2 Laser marker, 30 W avg. power
Laser for Frame	Fiber Laser marker, 30 W avg. power

OPTIONAL

- MQTT



FROM ORDER TO FINAL PRODUCT
ECOPROGETTI MES

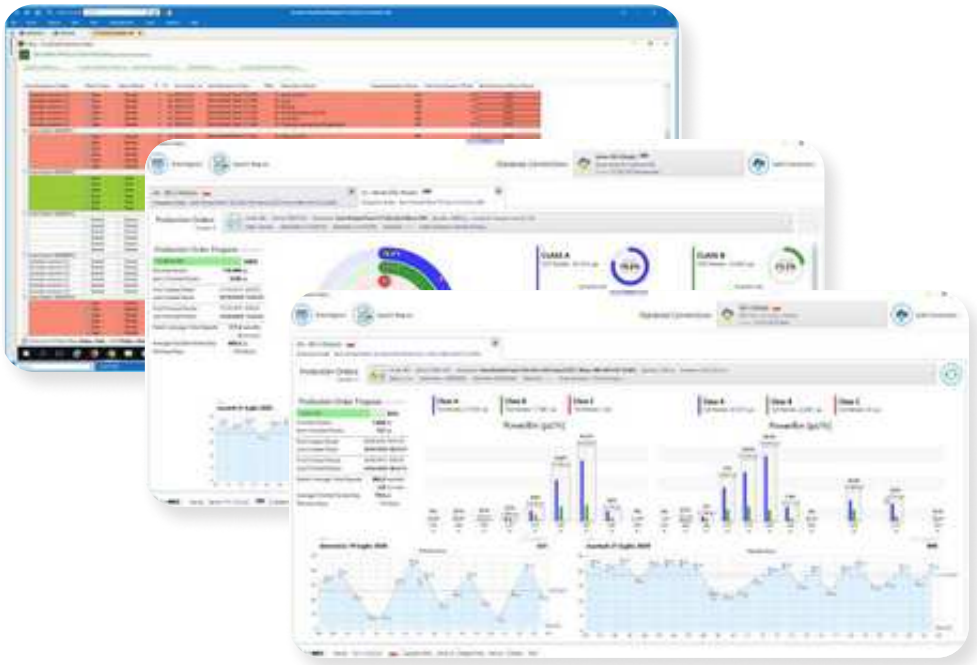
STAY IN CONTROL OF YOUR PRODUCTION

Our goal is to provide a system that monitors a more efficient photovoltaic production process, allowing you to concentrate on what's important while we take care of:

- Grading of PV panels and sorting accordingly
- Equipment monitoring and optimization
- Raw Material Tracking & Bill of Materials
- Digitalized plant reports
- Machine monitoring
- ERP integration

WORKS ON MOBILE

SMART REPORTS





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EASY INTERCONNECTIONS OF MACHINES AND SYSTEMS

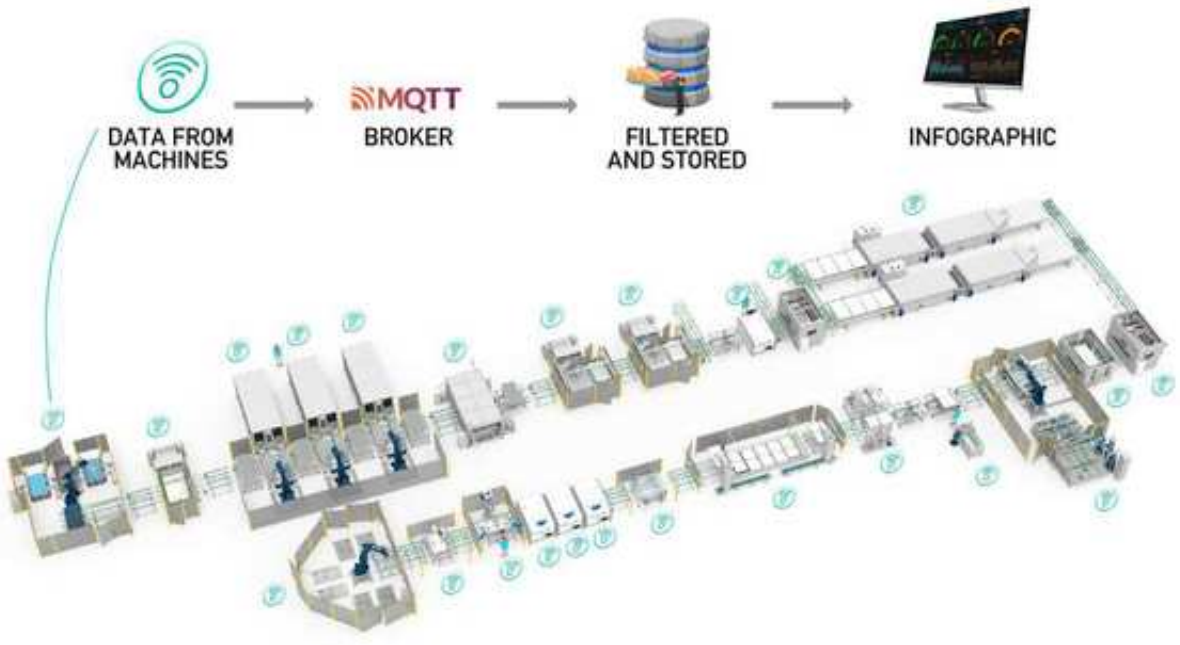
MQTT IMPLEMENTATION

ACCELERATE THE DIGITAL TRANSFORMATION OF YOUR PRODUCTION

Industry 4.0 is revolutionizing the way companies produce, improving productivity and product quality thanks to the introduction of new technologies in production plants. Ecoprogetti's machines are equipped with advanced sensors, embedded software and robotics components that collect and analyze data and enable better decision-making.

- Collect data and start Predictive Maintenance
- Get real OEE (Overall Equipment Effectiveness)
- Take action based on real data to optimize the production







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PRODUCTION EQUIPMENT

QUALITY & TESTING

To maintain quality and efficiency, photovoltaic modules are rigorously tested after key manufacturing stages using advanced technology. Strategically positioned throughout the production line, devices such as LED-based sun simulators, electroluminescence testers, hi-Pot testers, and automated optical inspection (AOI) systems ensure precise measurements and leverage cutting-edge technology.




ECOSUN PLUS A
LED SUN SIMULATOR A+A+A+

LED BASED SUN SIMULATOR A+A+A++

ECOSUN NOVA

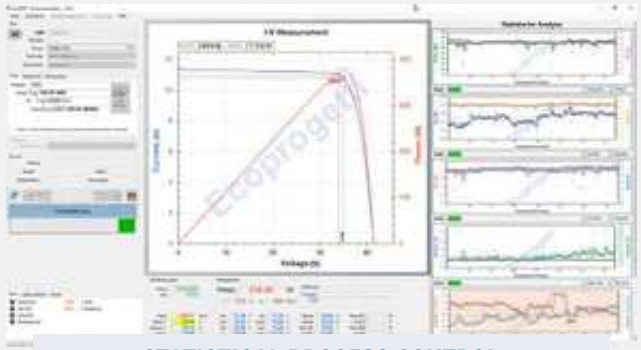
ECOSUN NOVA, our latest LED sun simulator featuring a patented LED light source for an almost perfect spectral match. This advanced tool excels in PV module and cell testing, offering consistent irradiance, precise IV curve testing, and continuous light soaking without downtime. Its superior uniformity and stability ensure efficient and accurate measurements.



DATASHEET & VIDEO



FULLY AUTOMATIC SOLUTION



STATISTICAL PROCESS CONTROL



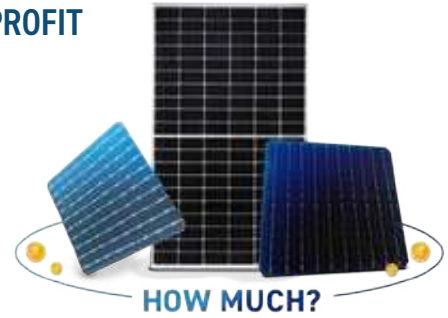
FOR PRODUCTION & R&D

TECHNICAL DETAILS

Spectrum range	300 nm to 1300 nm
Waiting times	No recharging time needed between tests
Flash duration	100 ms to 5 s (+72 hrs with active cooling)
LED lifetime	>50 Million pulses

MEASURE ITS POWER, MEASURE YOUR PROFIT

The sun simulators perform the most important tests that will give you the actual power of the sun simulator which also represents the value of the PV panel and of your investment.



- Compliant to the latest IEC norms.
- Suitable for production and laboratory.
- Highly customizable machine.

SPD (SPECTRAL DEVIATION)
<13,7%

SPC (SPECTRAL COVERAGE)
>99.8%

HIGHLIGHTS



CERTIFIED

TOP SELLER

ESSENTIALS

CLASSIFICATION

A+	A+	A++
SPECTRUM	NON-UNIFORMITY	INSTABILITY



Compatible with all available solar cells.

Integrated with 18bit instruments for the most acccurate measurements.

OPTIONAL MQTT

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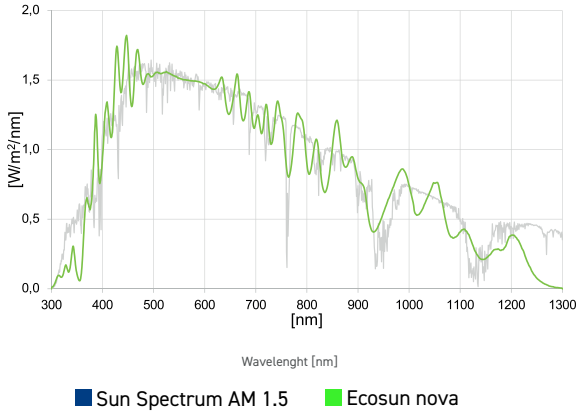
WHY TO CHOOSE LED BASED SUN SIMULATORS

THE ADVANTAGES OF LEDs

SPECTRUM

A+

Ecoprogetti's LED light source meets the AM 1,5 requirement
Spectrum Deviation <13,7 %
Spectrum Coverage >99.8 %

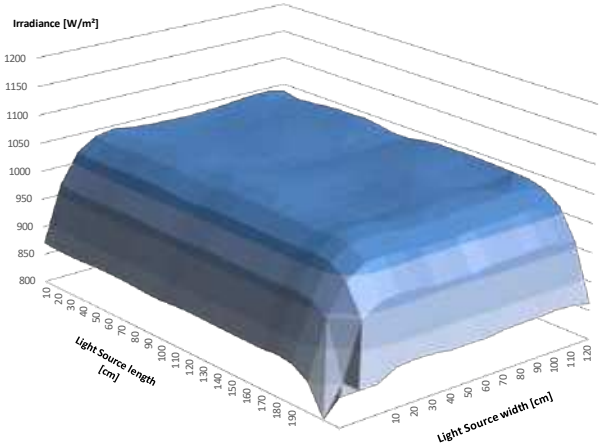


Light source temporal Stability

NON-UNIFORMITY

A+

The variation within A+ area is <±1%.

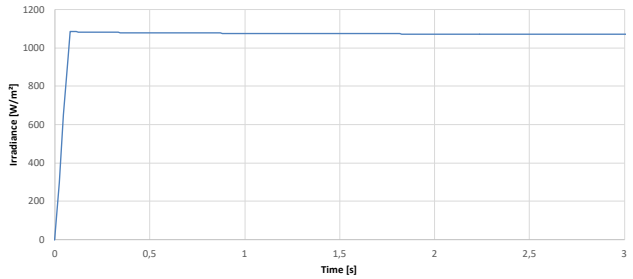


Uniformity Map

INSTABILITY

A++

A++ for short and long term instability
<± 0,125%



Light source temporal Stability



CERTIFIED & PATENTED

The unique LED board technology that Ecoprogetti embeds in its sun simulators is patented and certified A+A+A++.

OVER 200 UNITS SOLD & INSTALLED

Our Sun simulators can be used in production lines as well as laboratories.

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MANY LED TYPES +32 LEDs

To best match the sun's spectrum we use 32 different types of LEDs specially placed at the right distance on each LED board.

LIFETIME +50 MIL

The LED boards can perform more than 50 million pulses, requiring minimum maintenance and without any LED replacement

REPEATABILITY >99.9%

Data collected from testing one PV module more than 100 times*.

*Module temperature 25°C

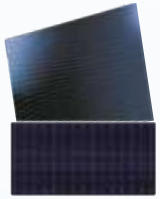
COMPATIBLE WITH:



TOPCon



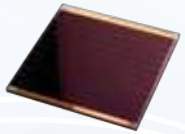
PERC



HJT



Back Contact



Perovskite & Tandem cells



Thin Film

STEADY STATE ∞ HRS

Can embed a liquid cooling system ideal to test high-efficiency solar cells with a continuous illumination up to an "unlimited number of hours".

NO RECHARGING TIMES

We guarantee a non-stop testing process since LEDs don't need any recharging time between tests. Also no capacitive effects.

ALL LEDs CAN BE TUNED

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Examples of custom machines

CUSTOM LED SUN SIMULATOR

Here are some of the customizations we've made for laboratories and production lines.

LOADING SYSTEM

PV Panels can be loaded automatically or manually depending on needs.







LIGHT SOURCE POSITION

The light source can be positioned facing down or facing up.

STEADY STATE

Liquid cooling system allows a continuous light soaking for up to 72hrs.



Solar cell tester designed for high power cells



CUSTOM SIZE

The modularity system of the led boards enables us to customize the size of the machine to any measure.



Usable area: 4,2 x 1,4 m



Usable area: 3,4 x 1,4 m

TECHNOLOGY INTEGRATION

Additional testing tools like EL tester and Hi-pot tester.

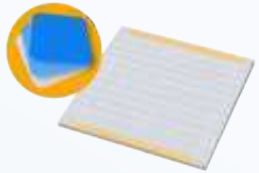


Let's Customize your ideal Ecosun!

Start from the LED Board and see all the customization possibilities:

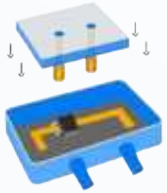


ECOPROGETTI LED BOARDS
CERTIFIED CLASS A+A+A++



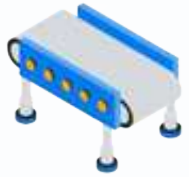
CELL TECHNOLOGY

Perovskite / HJT / TOPCon, etc...



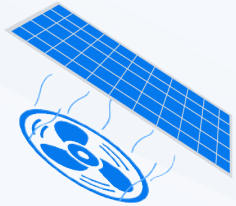
AUTOMATIC CONTACTING

Pins automatically create an electrical connection.



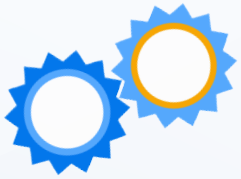
LOADING SYSTEM

Automatic or Manual loading/unloading



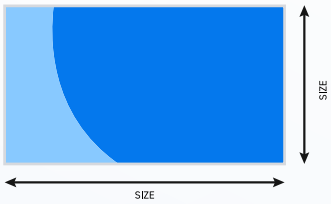
TEMPERATURE CONTROL

Cooling of the PV panel.



TECHNOLOGY INTEGRATION

Hi-pot, EL tester, etc...



PANEL SIZE

Our modular system addresses a range of module sizes based on cell sizes from M2 to G12.



LIGHT SOURCE POSITION

Sunny side up or Sunny side down.



ACTIVE COOLING SYSTEM

Get +72 hrs of continuous light soaking, ideal for Perovskite cells.

DO YOU NEED HELP?
Contact our engineers if you have doubts on what is the best solution for you.

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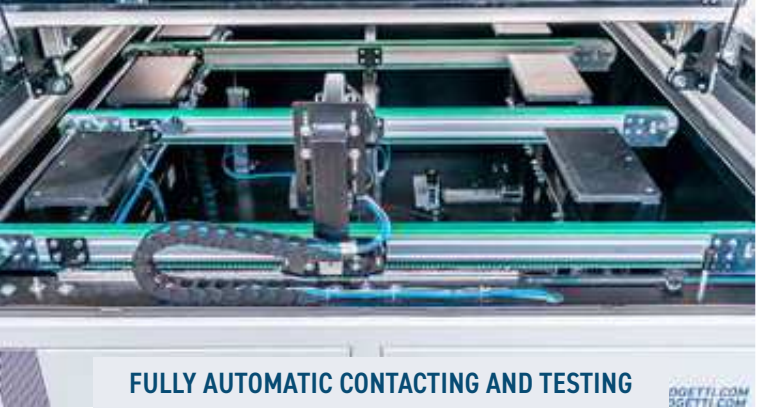
ELECTROLUMINESCENCE TESTER

ECOLAB EL

The ECOLAB EL is a versatile, high-resolution electroluminescence inspection system designed to be used both before lamination and at the end of the production line. It enables operators to spot any issue with the structure of the PV panels, allowing for ongoing improvements.



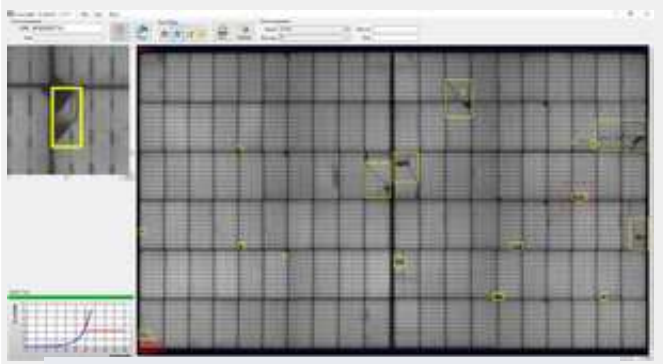
DATASHEET & VIDEO



FULLY AUTOMATIC CONTACTING AND TESTING



IDENTIFY PANEL DEFECTS IN TIME



AI, AUTOMATIC DEFECTS DETECTION

OPTIONAL: MQTT

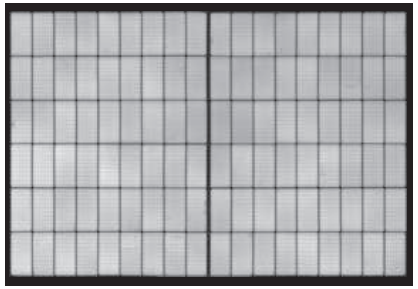
TECHNICAL DETAILS

Compatible with	Any commercially available solar cell
Function	Dark current test & Electroluminescence
Storage	SQL database for data storage

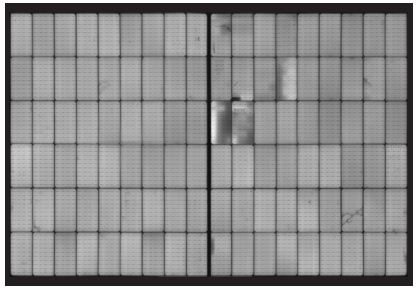
MODEL TYPE	LOAD/UNLOAD	RESOLUTION	SOFTWARE
ECOLAB EL	Manual	8 Mpx	Standard
ECOLAB EL A	Automatic	8 Mpx	Standard
ECOLAB EL HR	Automatic	24 Mpx	Standard + AI

Electroluminescence examples:

PASS



FAIL



HIGHLIGHTS

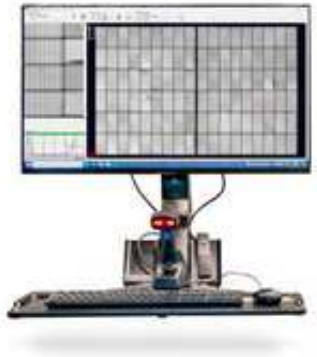


EMBEDDED AI SYSTEM

AUTOMATICALLY DETECT & CLASSIFY DEFECTS

DENK

A.I. software with neural network from Denkweit detects cells' defects through EL test image.



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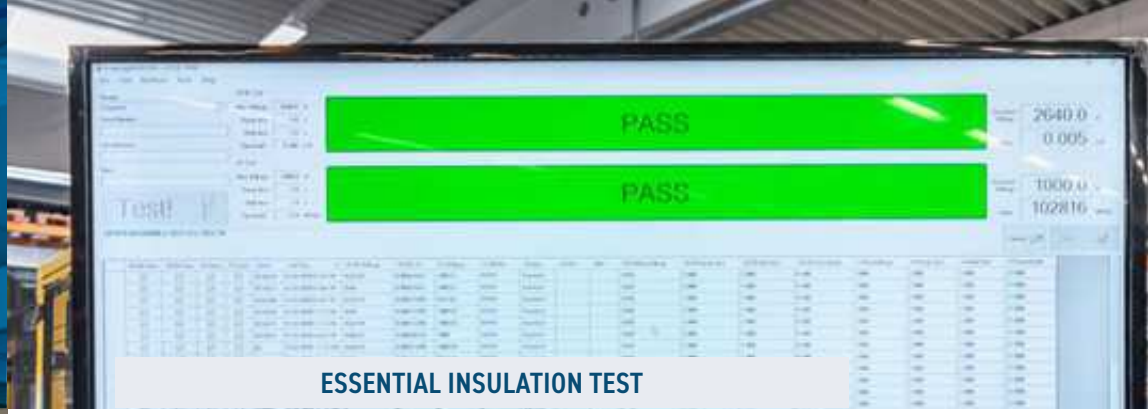
IN-LINE ISOLATION MEASUREMENT

ECOHI-POT

A must have device, offering precise electrical insulation tests for PV modules. It accommodates framed and frameless panels.



DATASHEET & VIDEO



ESSENTIAL INSULATION TEST

HIGHLIGHTS

COMPLIANT & READY

It complies with the IEC 61215/61730 and it's capable of executing tests up to 11kV.



AUTOMATIC CONTACTING



MANUAL CABLE CONNECTION



TECHNICAL DETAILS

Compatibility	G+B, G+G and Frameless modules contacting with conductive system
Insulation resistance	Max 1500V - 1MΩ ~ 9500MΩ
Max DC with standing	6000 V (opt 11000V)
Max AC with standing:	5000 V (opt 11000V)

OPTIONAL: · MQTT · **GROUND BONDING**

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INLINE VISUAL INSPECTION

ECOVISUAL 90°

A semi-automatic station that lifts and rotates the panel to face the operator for a final visual inspection.

DATASHEET & VIDEO



QUALITY MEASUREMENTS DISPLAYED ON SCREENS

HIGHLIGHTS

WHY TO HAVE A VISUAL INSPECTION?

It support a comprehensive evaluation of the panel's quality based on the producer's benchmarks. The station includes two high-resolution screens to show I-V Curve, EL test results and more.



QUICK FINAL INSPECTION



INFOPOINT OF PANEL HISTORY



TECHNICAL DETAILS

Function	Lifts &rotates the panel to face the operator
Automation	Semi-automatic with pedal
Handling system	Strong vacuum with 6 suction cups

OPTIONAL: · MQTT

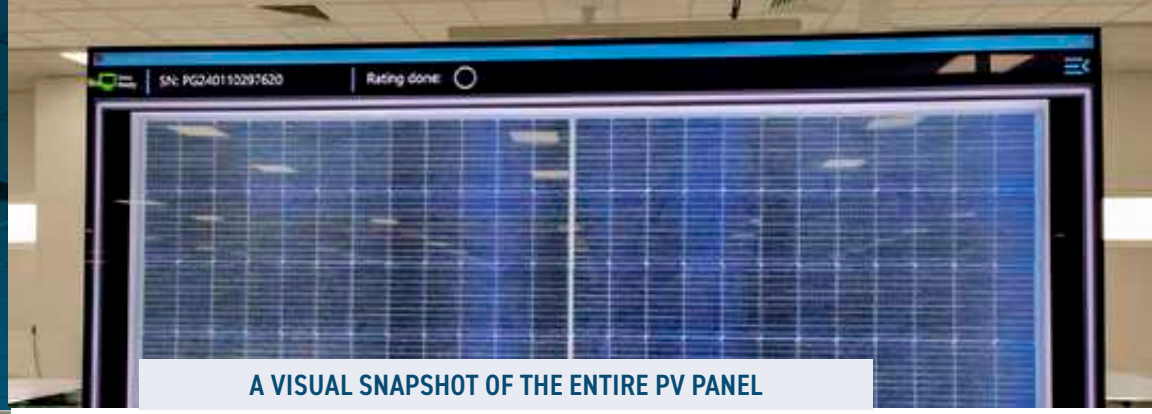
AUTOMATIC OPTICAL INSPECTION

ECOVISUAL AOI

It automatically captures high-resolution images of the full visible area of the PV panel for record-keeping and analysis.



DATASHEET & VIDEO

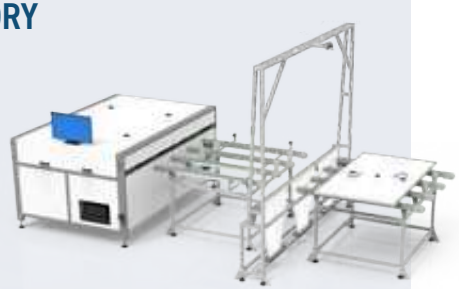


A VISUAL SNAPSHOT OF THE ENTIRE PV PANEL

HIGHLIGHTS

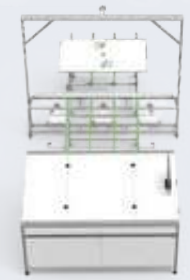
AUTOMATED IMAGE REPOSITORY

This AOI machine collects high resolution images of the front and/or back of the PV panel, which are then stored with all the test history of that panel.



SUNNY SIDE DOWN SHOOTING





TECHNICAL DETAILS

Full image resolution	322 MPX
Automatic inspection	Analyzed gaps and distances of the items.

OPTIONAL: · MQTT

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IN-FIELD PV MODULE TESTER

ECOTRUCK

The ECOTRUCK combines advanced testing equipment in a mobile unit, swiftly identifying various defects and performance issues in solar panels.

DATASHEET & VIDEO



STURDY AND VERSATILE TESTING TRUCK

HIGHLIGHTS

MOBILE TESTING SOLUTION

All in one solution for in-field check, ready to be deployed and used.



LOADING THE PV PANEL



WORK SETUP



INCLUDES:

1. LED SUN SIMULATOR
2. EL TESTER
3. HI-POT TESTER
4. INSULATED AIR CONDITIONED TEST CHAMBER

FOR SOLAR PARK:

Allows also an accurate control of incoming panels before installation.





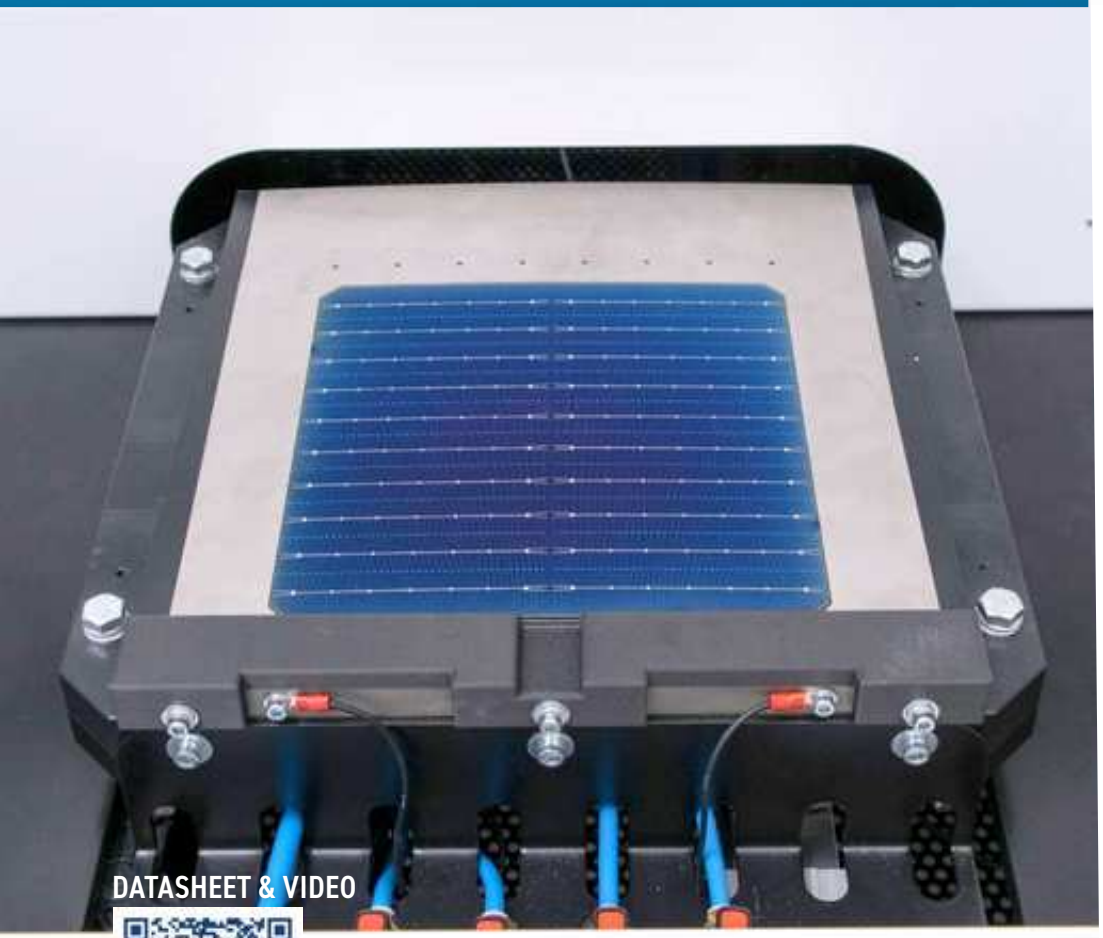
OPTIONAL

- Diesel Generator
- Battery pack
- Thermal camera

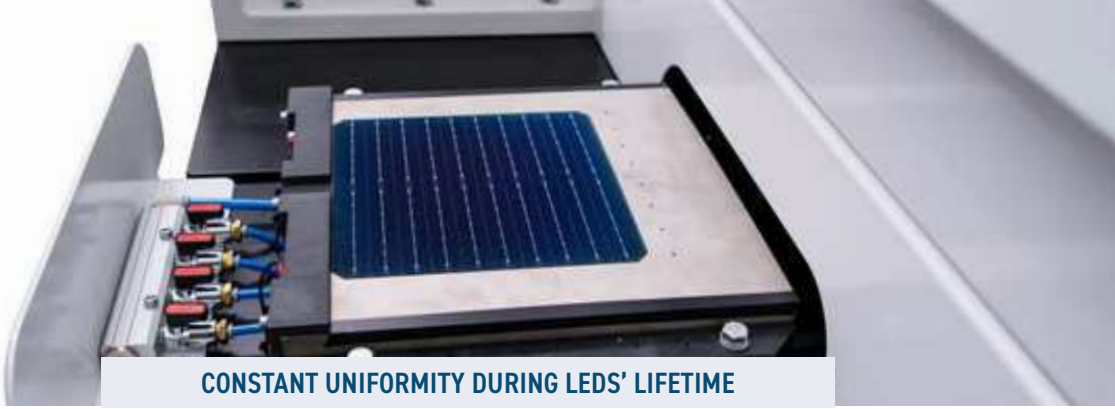
LED BASED SOLAR CELL TESTER A+A+A++

ECOSUN CELL

The ECOSUN CELL is a certified LED flash tester for precise solar cell efficiency measurement and data management.



DATASHEET & VIDEO



CONSTANT UNIFORMITY DURING LEDS' LIFETIME

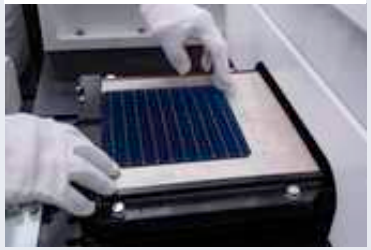
HIGHLIGHTS

WHAT IS ITS PURPOSE?

A cell tester verifies individual cell efficiency, identifies defects pre-assembly, ensuring PV panels meet standards.



MANUAL CELL LOADING



SEMI-AUTO TESTING



TECHNICAL DETAILS

Technology	LED based with contacting pins or wires
Compliance	Compliant to the latest IEC norms
Compatibility	From 5 to 24 BB

OPTIONAL: · MQTT · Fully automatic testing and sorting

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OTHER SOLUTIONS FOR QUALITY CONTROL

ESSENTIAL QUALITY TOOLS

POST-SOLDERING

ELECTROMAGNETIC FIELD CONTROL

NEW!

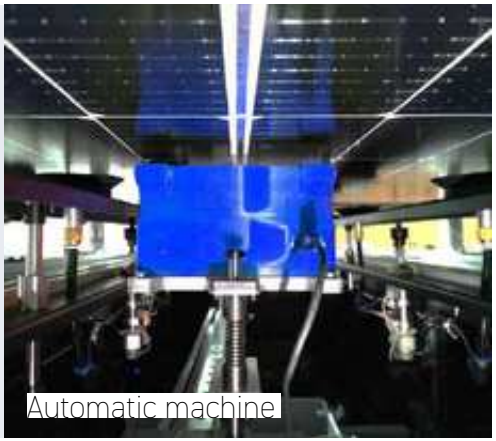
Ecoprogetti provides a tool that tests electromagnetic fields to verify the soldering quality of interconnections. This tool can be used manually or within a machine, and it non-destructively assesses solder joints in real-time at multiple levels.

Scan speed: 1-2 sec/cell

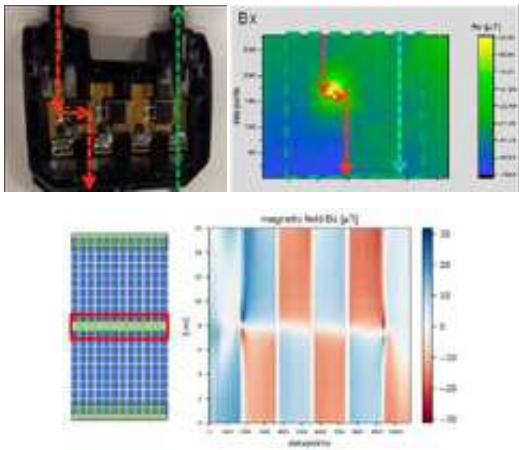
For J-boxes and PV panels or Cells.



Manual tool



Automatic machine



POST-SOLDERING

PEEL TEST KIT

Photovoltaic module efficiency relies on solder quality. Ecoprogetti's kit evaluates adhesion to optimize resistance and boost energy efficiency.



POST-LAMINATION

GEL CONTENT TEST KIT

Lamination turns the encapsulant from solid to liquid, forming a gel that seals and prolongs the module's life. Poor settings or materials can affect quality. Ecoprogetti's kit allows in-house chemical testing of the gel content for essential quality control.



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PRODUCTION EQUIPMENT

ACCESSORIES

Ecoprogetti provides a comprehensive range of accessories designed to enhance and streamline production operations within the manufacturing line.
These essential additions include conveyor belts, gates, and specially crafted tools, all aimed at optimizing the flow of production.

BENCHES AND CONVEYORS

BUSSING AND INSPECTION



- Special tables and benches designed for PV module production
- Light tables predisposed with smoke aspiration system for bussing
- Benches for string reparation
- Conveyor belts, centering systems, gates...



ALL 100% MADE IN ITALY WITH THE HIGHEST EUROPEAN STANDARDS

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PACKING TOOLS
ACCESSORY FOR GOOD SHIPMENT




Automatic dispenser to speed up the packing of the pv modules.

ECOLAM 6040
LAB SCALE ELECTRIC LAMINATOR




The ECOLAM 6040 is a lab-scale laminator, popular among material manufacturers for photovoltaic development.

ECOPRINTER
RIBBON PAINTING MACHINE



The machine colors the ribbon that was previously soldered to the PV cells. Create innovative architectural designs with advanced ink color customization for your PV panels.

ECOCOVER STRIPES
EPE STRIPE POSITIONER




Fully automatic cutting and positioning of EPE stripes on three positions (top, middle, and bottom panel coverage). EPE stripes are mainly used to conceal the shiny soldering ribbon.

ECOSIL 03
MANUAL SILCONE DISPENSER





Automatic pump for manual silicone deposition. Drum size: from 20 to 200 liters.
- Suitable for bi-component silicone drums
- Easy maintenance

TAPE DISPENSER
MANUAL TAPING FOR LAMINATED MODULES

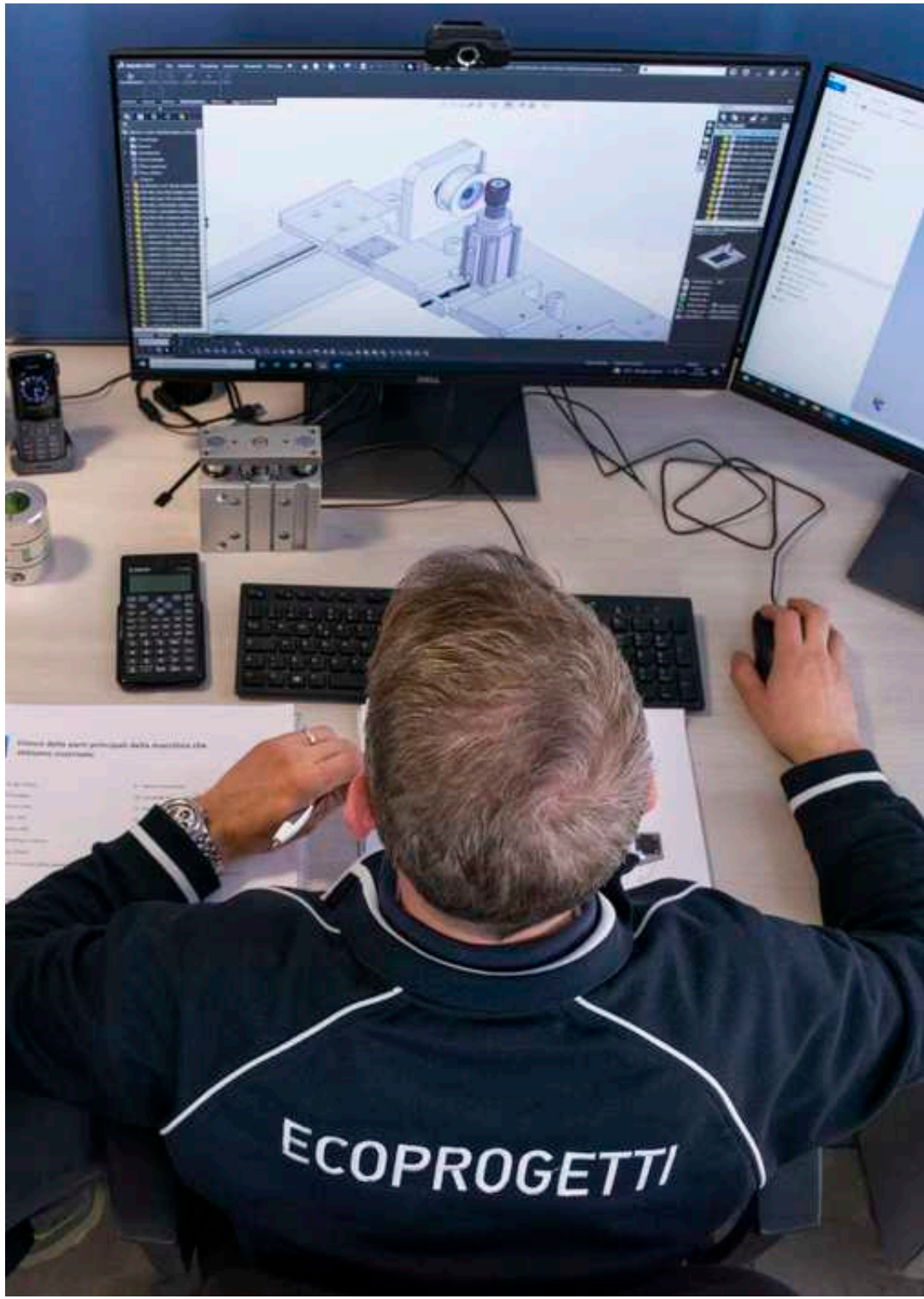


Tape dispensing solutions are available in automatic or semi-automatic mode, in order to dispense the tape foam on the laminate sides before framing.

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SERVICES

Ecoprogetti's services extend beyond equipment provision, offering full customer care, assistance in raw material selection, certification support, process training, and seamless installation and commissioning. Additionally, a dedicated spare parts service ensures ongoing operational efficiency and productivity.




LF CUT LONG STRING MODULE
ECOPROGETTI EQUIPMENT
AUTOMATIC BUSSING
AUTOMATIC INTERCONNECTION SOLDERING
UTOMATIC BUSSING
HALF CUT CELLS









SERVICES TO START RIGHT

1

PROCESS TRAINING

Ecoprogetti is committed to your production success by:

- Collaborating on equipment development, testing new machines and materials.
- Creating tailored business plans for customers.
- Providing a training program for in-depth production process knowledge and hands-on machinery experience.

2

CERTIFICATION

Ecoprogetti can support the customer for the entire certification process both by helping the customer to spot the best suitable raw material as well as performing pre-certification quality tests on the material and on the finished product.

3

INSTALLATION & COMMISSIONING

- Tailored plant designs to meet customer needs.
- Ready-to-use machines with quick installation.
- Ongoing support through the production ramp-up and beyond.

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360° SERVICE

4

ONLINE SUPERVISION

Ecoprogetti's equipment features ethernet connectivity for real-time machine communication, enabling swift online supervision and technical assistance. This service is designed to minimize production downtime and ensure efficient, timely support.

5

COMPREHENSIVE SUPPORT

Ecoprogetti's assistance package includes expert advice, high-quality production guidance, and on-site support options. Leveraging experienced technicians and global offices, the company offers prompt, efficient feedback on machinery and production, accommodating both remote and on-site needs.

6

SPARE PARTS SERVICE

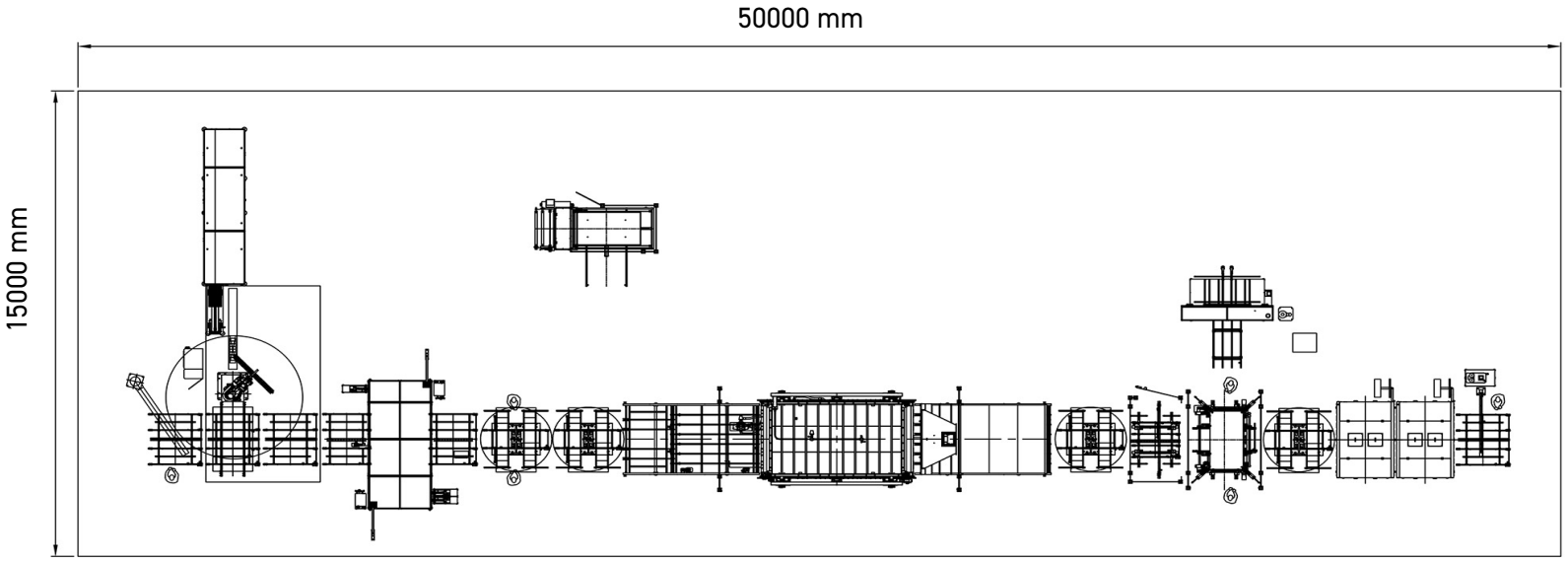
Ecoprogetti provides a one-year standard spare parts service, featuring efficient, organized access from two vertical warehouses. The company partners with top suppliers to simplify procurement of necessary components.

WE ALSO OFFER A COMPREHENSIVE RAW MATERIAL SUPPORT!

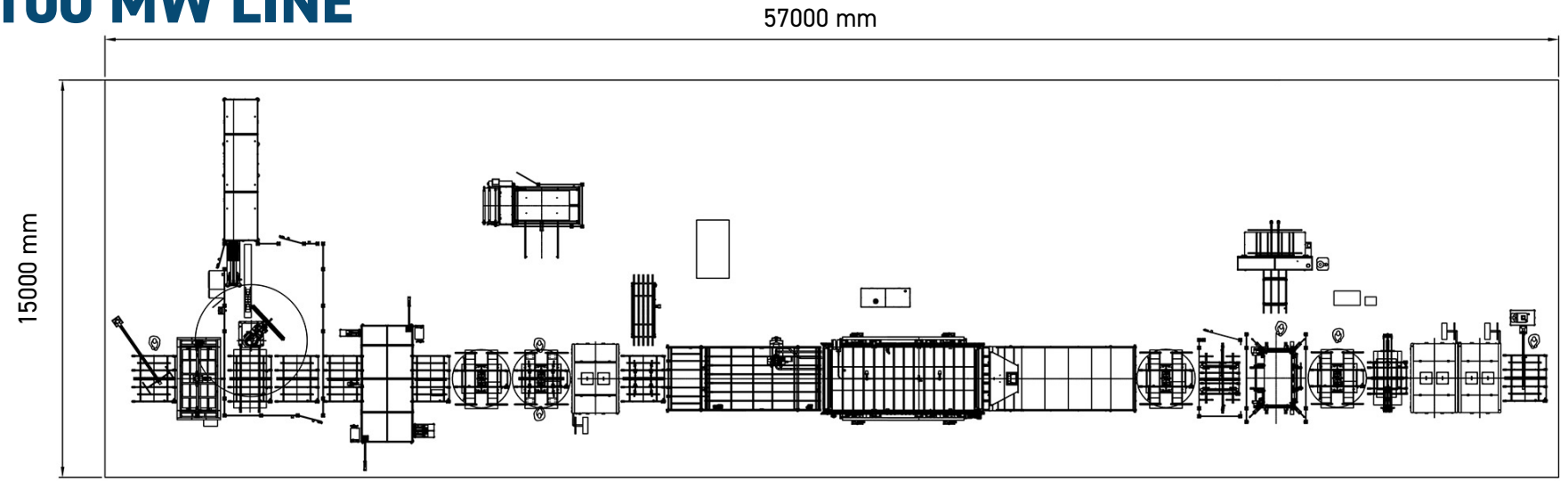
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2D LAYOUT OF:

30 MW LINE



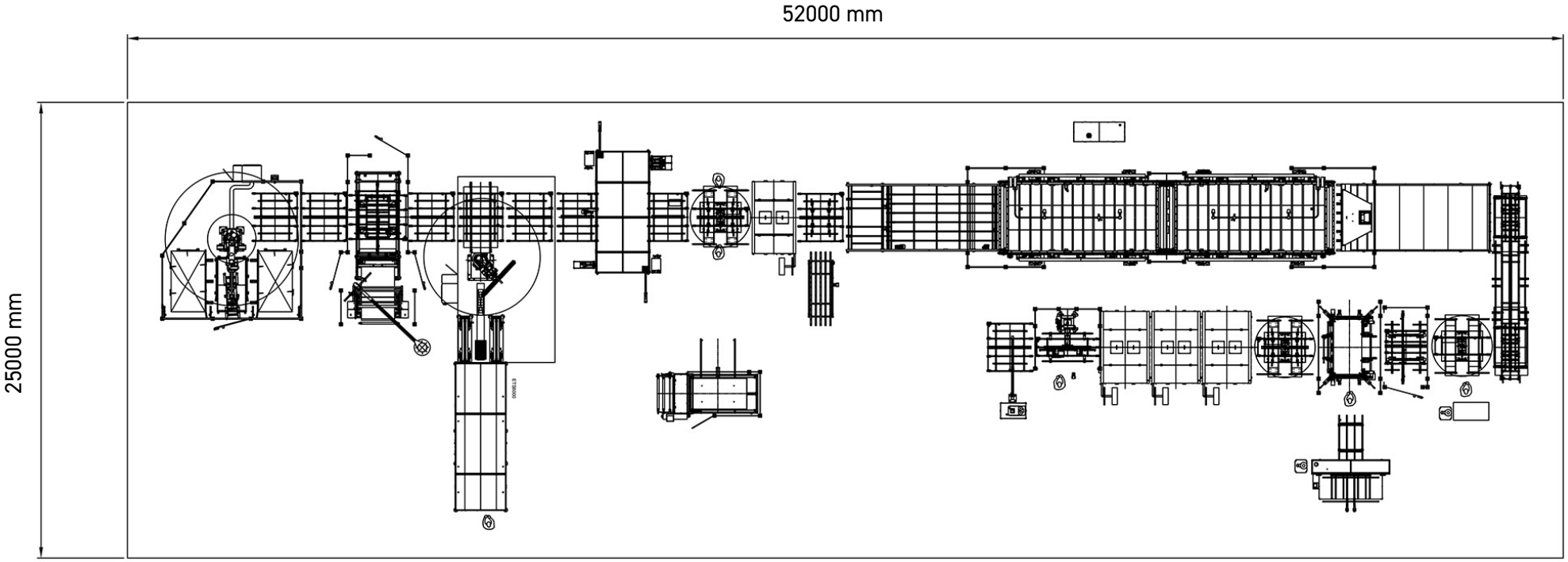
100 MW LINE



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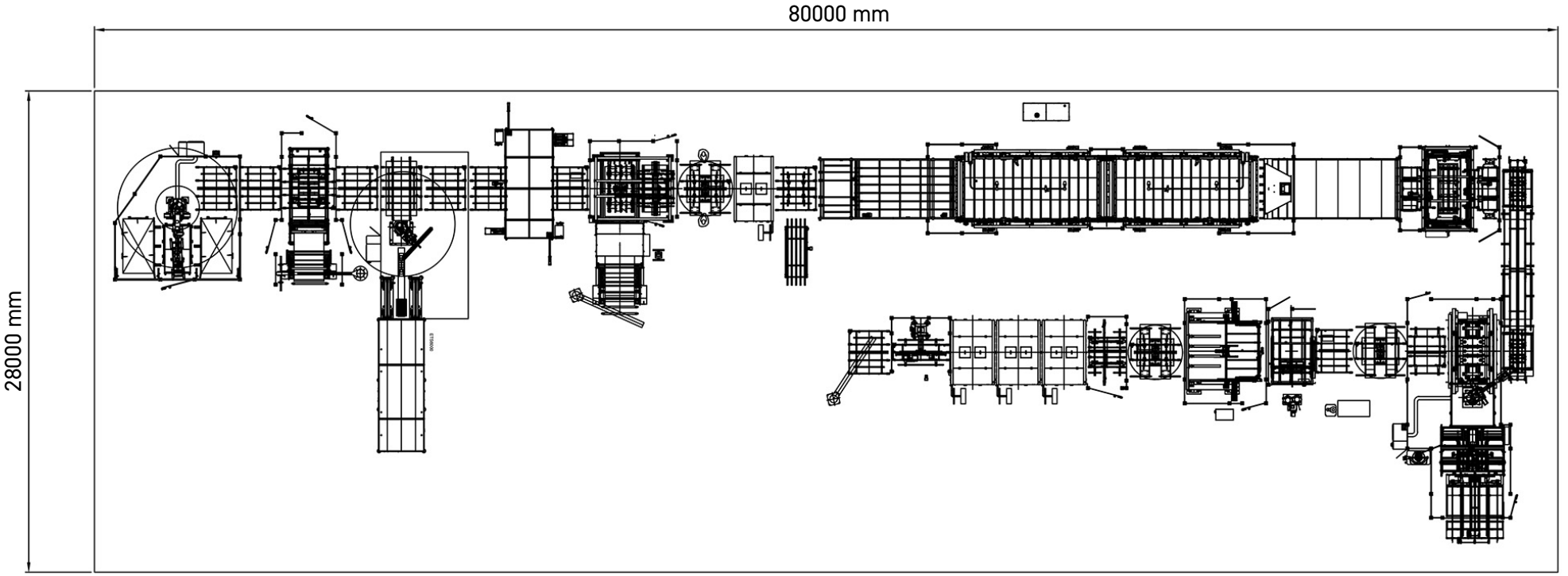
2D LAYOUT OF:

200 MW SMART LINE



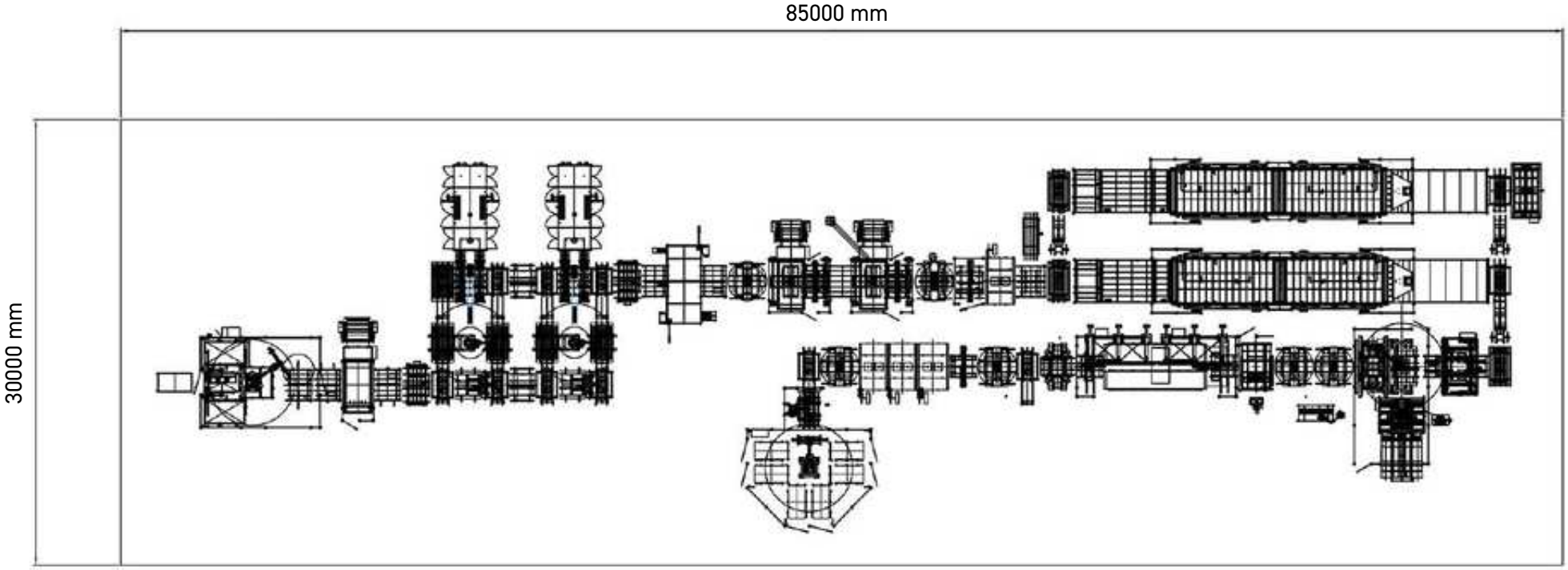
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2D LAYOUT OF:
200 MW HIGHLY LINE



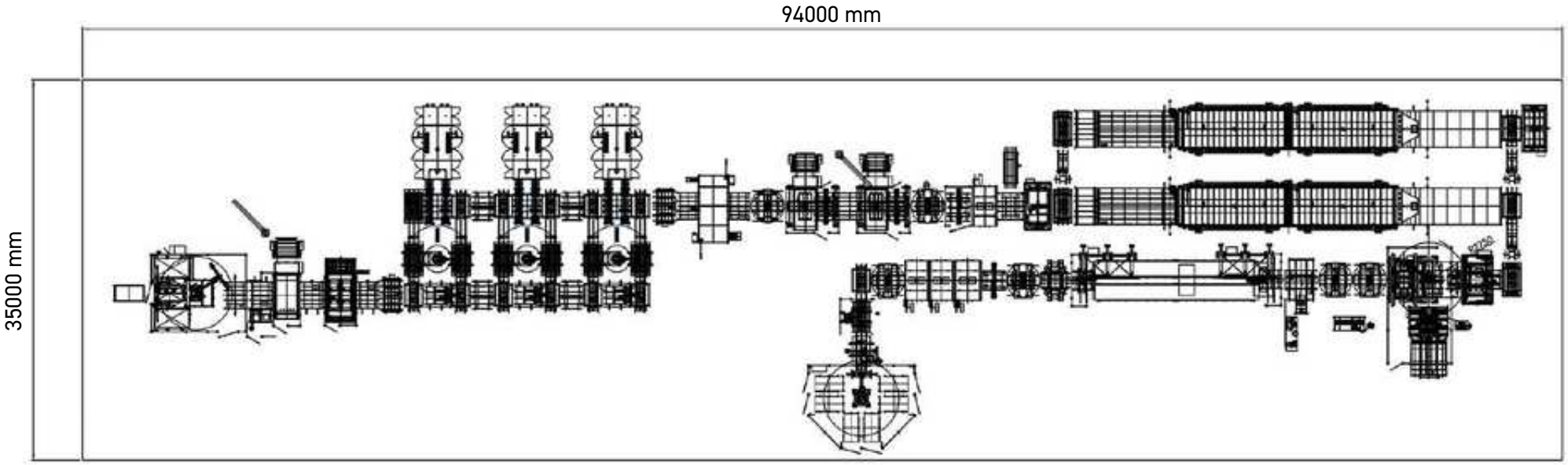
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2D LAYOUT OF:
400 MW NEXT LINE



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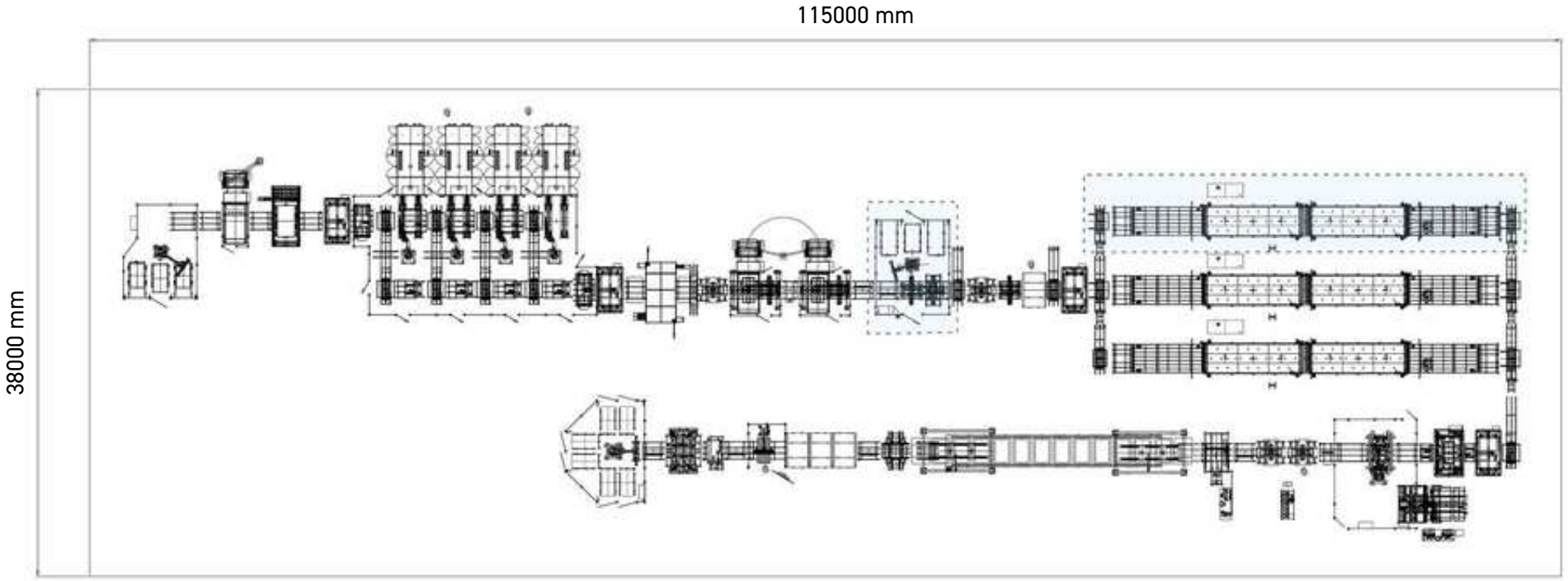
2D LAYOUT OF:
600 MW GLOBAL LINE



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2D LAYOUT OF:

800 MW FULLY LINE



OPTIONAL EQUIPMENT
FOR GLASS GLASS CONFIGURATION

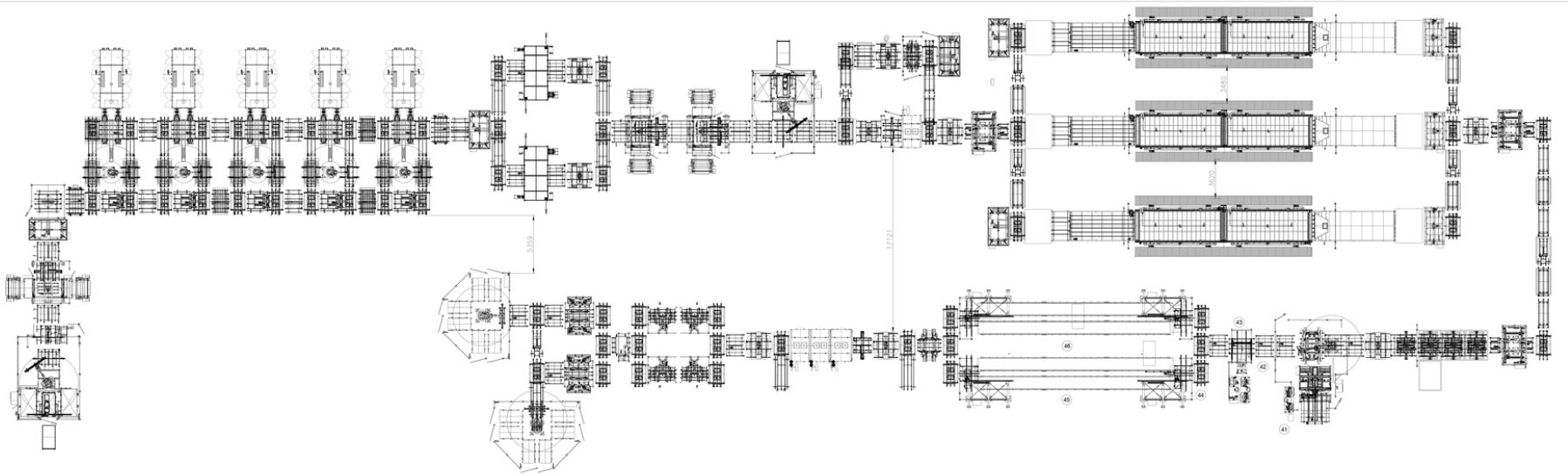
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2D LAYOUT OF:

1.2 GW UNIVERSAL LINE

133000 mm

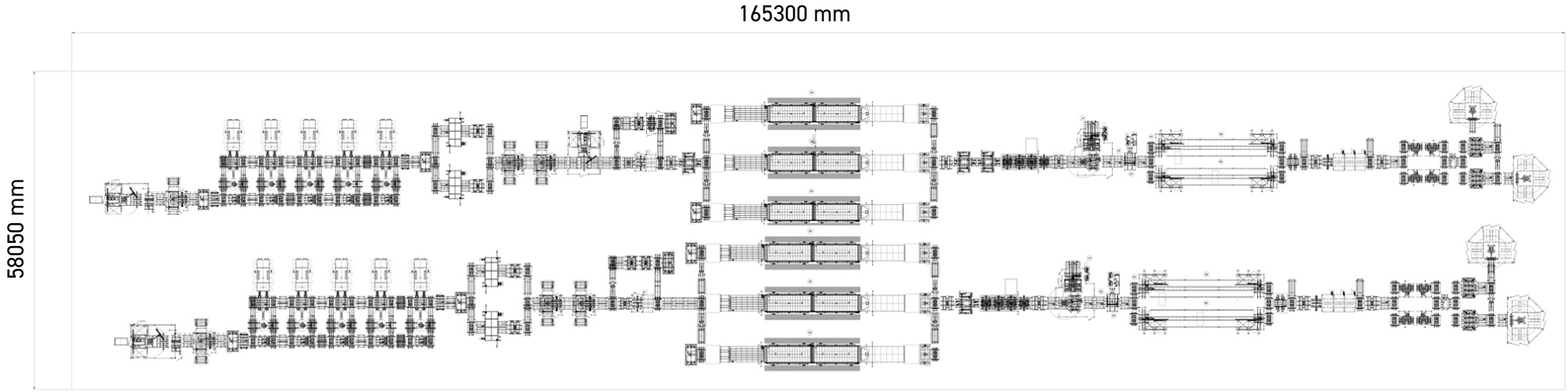
448000 mm



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2D LAYOUT OF:

2.4 GW HYBRID LINE



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MACHINE UTILITIES

Essential systems that enable machinery to operate efficiently and safely within industrial settings.

	Electrical characteristics						*Air characteristics*			*Dimension*			
	Line	Voltage	Frequency	P. max	P. average	Current	Pressure	Consumption average	Peak	Height	Length	Width	Weight
	-	[V]	[Hz]	[kW]	[kW]	[A]	[MPa]	[NL/1']	[NL/1']	[mm]	[mm]	[mm]	[kg]
ETS 3000	3P+N+G	400	50/60	50	30	85	0.6 - 0.8	1000	1300	2500	9100	2400	7000
ETS 6000	3P+N+G	400	50/60	80	40	140	0.6 - 0.8	1000	1300	2500	9100	2400	7200
ECOLAYUP R	3P+N+G	400	56/60	15	12	25	0.6 - 0.8	10	15	4000	8000	6000	1500
ECOGLASS R	3P+N+G	400	50/60	20	10	32	0.6 - 0.8	30	40	4000	2500	3200	3100
ECOPACK R	3P+N+G	400	50/60	20	15	36	0.6 - 0.8	30	40	3000	7500	6000	1200
ECOCUT 20 A	3P+N+G	400	50/60	5	3	10	0.6 - 0.8	<1	<1	2200	5900	4050	3250
ECOCUT 20 AP	3P+N+G	400	50/60	5	3	10	0.6 - 0.8	435	450	2200	5900	4050	3250
ECOLAS	3P+N+G	400	50/60	2,5	2	6	0.4	<1	<1	1550	1000	800	120
ECOCUT & BEND	2P+E	230	50	1,5	1	7	0.6 - 0.8	5	15	1400	750	2000	500
ECOLAM 2500 3	3P+N+G	400	50/60	45	14	68	0.6 - 0.8	<1	<1	2200	15100	4150	16000
ECOLAM 2500 4	3P+N+G	400	50/60	63	19	92	0.6 - 0.8	<1	<1	2200	19500	4150	20000
ECOLAM 2500 5	3P+N+G	400	50/60	155	47	218	0.6 - 0.8	<1	<1	2200	23800	4150	23000
ECOLAM 2500 3 DS	3P+N+G	400	50/60	90	27	135	0.6 - 0.8	<1	<1	2200	30500	4150	32000
ECOLAM 2500 4 DS	3P+N+G	400	50/60	125	37,5	185	0.6 - 0.8	<1	<1	2130	40000	3310	40000
ECOLAM 2500 5 DS	3P+N+G	400	50/60	310	93	435	0.6 - 0.8	<1	<1	2130	48000	3310	46000
PUMP HOUSING	3P+N+G	400	50/60	8	5	21	N/A	N/A	N/A	1200	2100	805	350
BUFFER LIFO 30	3P+N+G	400	50/60	2,5	1,5	4	N/A	N/A	N/A	3900	2200	2750	1900
BUFFER FIFO 30	3P+N+G	400	50/60	6	3	8	N/A	N/A	N/A	4650	3624	4544	4400
ECOMULTISTATION	3P+N+G	400	50/60	0,5	N/A	N/A	0.2	3	5	1000	2300	1400	250

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MACHINE UTILITIES

Essential systems that enable machinery to operate efficiently and safely within industrial settings.

	Electrical characteristics						*Air characteristics*			*Dimension*			
	Line	Voltage	Frequency	P. max	P. average	Current	Pressure	Consumption average	Peak	Height	Length	Width	Weight
	-	[V]	[Hz]	[kW]	[kW]	[A]	[MPa]	[NL/1']	[NL/1']	[mm]	[mm]	[mm]	[kg]
ECOTRIM A	3P+N+G	400	50/60	4	3,5	6	0.6 - 0.8	N/A	40	1900	3800	3500	1750
ECOFRAME HA	3P+N+G	400	50/60	7,5	5	11	0.6 - 0.8	3	5	1200	7300	3500	1500
ECOFRAME ISLAND	3P+N+G	400	50/60	2,5	2,2	3,6	0.6 - 0.8	40	60	6000	16000	6800	N/A
ECOSIL 03	1P+N+G	230	50/60	1	0,3	3	0.6 - 0.8	<1	<1	980	500	500	40
ECOSIL 14	1P+N+G	230	50/60	1	0,5	5	0.6 - 0.8	<1	<1	1500	2300	2400	350
ECOBUSSING	3P+N+G	400	50/60	50	45	80	0.6 - 0.8	1500	2000	2200	7150	4200	4000
ECOCURING	3P+N+G	400	50/60	6,5	5,2	9,5	0.6 - 0.8	10	15	2500	22000	3500	7000
ECOGRINDING	3P+N+G	400	50/60	3	1,7	4	0.6 - 0.8	3	5	1200	2200	2700	350
ECOLABELLING	3P+N+G	400	50/60	1	0,5	2,2	0.6 - 0.8	<1	<1	1800	1700	2800	500
ECOJ-BOX S	1P+N+G	230	50	0,8	0,7	3	0.6 - 0.8	<1	<1	1800	1600	750	180
ECOJ-BOX A	1P+N+G	230	50/60	1	0,8	3,5	0.6 - 0.8	<1	<1	1500	2400	1000	400
ECOJ-BOX R	3P+N+G	400	50/60	31	25	50	0.6 - 0.8	<1	40	2100	3550	6600	1400
ECOLAB EL HR	1P+N+G	230	50/60	1	0,5	2,2	0.6 - 0.8	<1	<1	1300	2250	1400	680
ECOSUN CELL	1P+N+G	230	50/60	2	0,5	12	0.6 - 0.8	<1	<1	1400	1600	800	260
ECOSUN NOVA A	3P+N+G	400	50/60	20	3	25	0.6 - 0.8	<1	<1	1550	2400	2100	1420
ECOHI-POT A	3P+N+G	400	50/60	0,6	0,2	2,5	0.6 - 0.8	<1	<1	1520	2800	1650	820
ECOTRUCK	1P+N+G	120-240	50/60	3	2	13	-	-	-	2370	2620	4430	810
ECOPRINTER	1P+N+G	230	50/60	3,5	12	14	0.6 - 0.8			1800	3310	1200	680
ECOVISUAL 90°	3P+N+G	400	50	1	0,8	1,5	0.6 - 0.8	5	3	2500	2050	2300	800
ECOWEIGHTLESS	1P+N+G	230	50/60	N/A	4	0,015	0.6 - 0.8	40	40	3845	2540	1000	250

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WE ARE HERE



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WHY CHOOSE ECOPROGETTI?

Sun light is an unused free energy available everywhere!

1

LOWEST OPEX

We offer advanced solutions for the production of photovoltaic panels, drastically reducing operating costs through reduced maintenance and durable components. Our optimised production process minimises waste and rework costs, while automated lines improve productivity and reduce energy consumption. Choosing Ecoprogetti means efficiency and sustainability, giving you a competitive edge in the industry.

2

BEST SERVICE & SUPPORT

We guarantee excellent support: we respond to service requests within 48 hours and offer ongoing local support. With a large stock of spare parts and expert technical assistance, we provide comprehensive training for installation and initial start-up. In addition, our engineering team develops customised solutions for photovoltaic modules, ensuring reliable service tailored to your needs.

3

TECH IMPROVEMENTS

Technological improvements in photovoltaic materials and manufacturing have significantly reduced the cost of solar panels. The International Renewable Energy Agency (IRENA) reports a cost drop of over 80% since 2010. This reduction enhances the economic viability of solar projects, potentially yielding higher returns on investment in PV panel production.

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