

Robotic Structural Steel Assembler

AGEN RSSA

www.agenrobotics.com
www.agen.at

SOLO 1 | DUO 1 2 | TRIO 1 2 3

IMPROVE YOUR

QUALITY
EFFICIENCY
PRODUCTIVITY

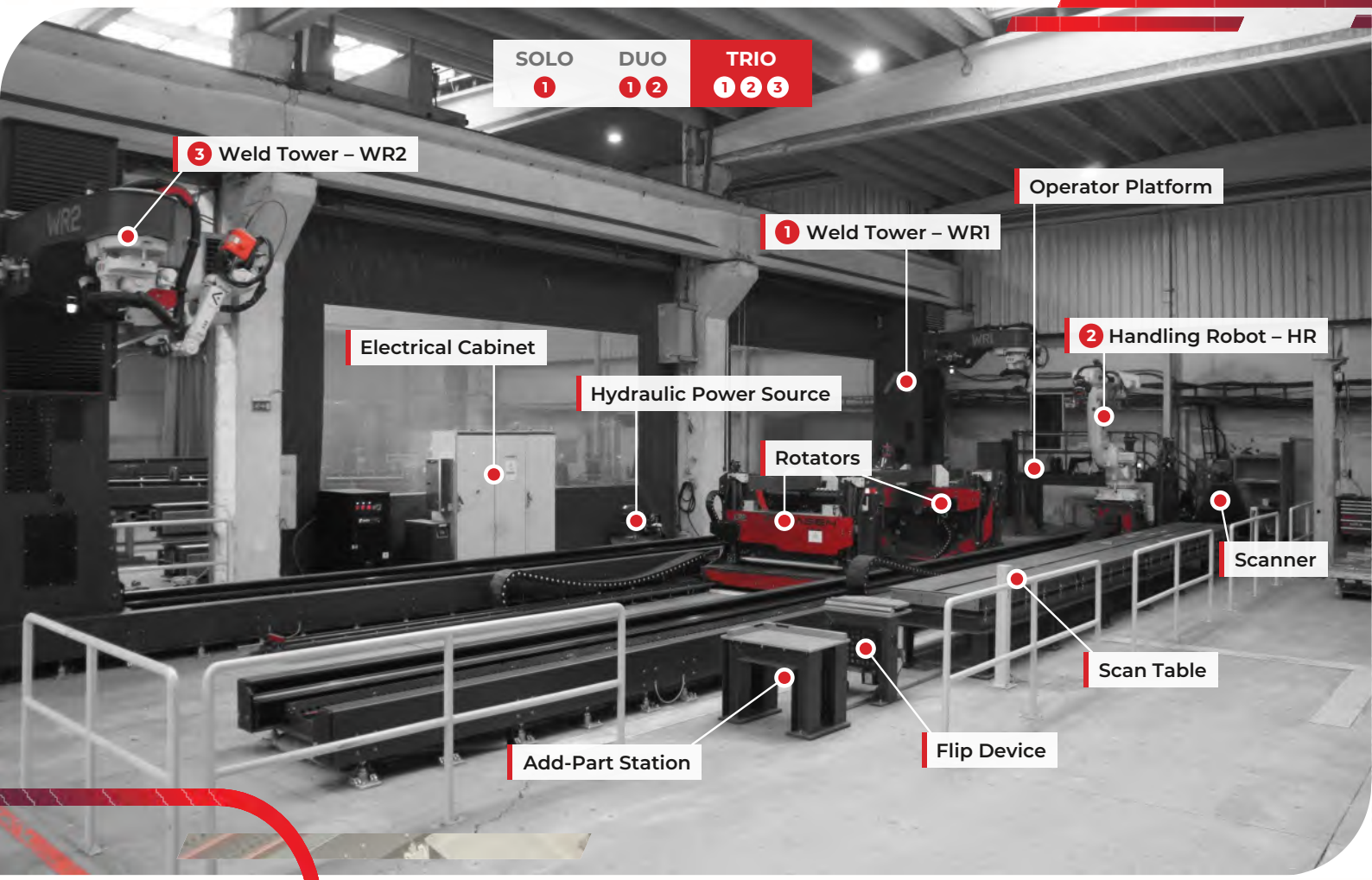
IN STRUCTURAL STEEL FABRICATION



AGEN DUO

Assembly
GENerator
Two Robots

AGEN RSSA

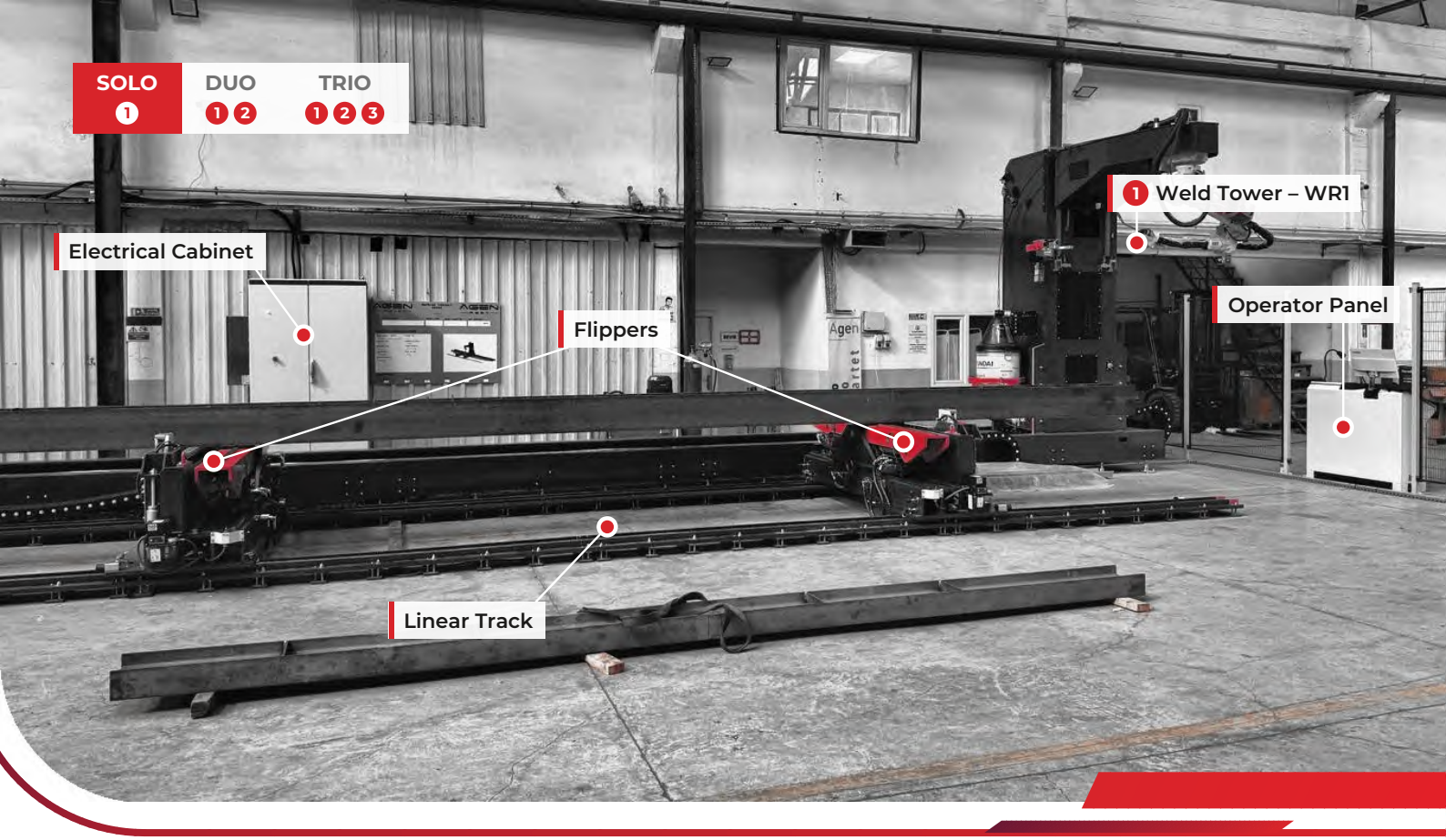


Assembly GENerator

AGEN TRIO

Three Robots

Duo + second weld tower (WR2)



AGEN SOLO | 1 robot · you fit, it welds

YOU FIT. IT WELDS.

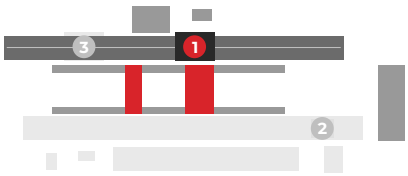
Manual welding leaks capacity invisibly: climbing into awkward positions, gearing up and down between seams, re-finding your position at every weld, breaks, and a weld speed that varies with the welder and the time of day.

AGEN Solo closes that gap. Load by crane or forklift and let it run: the robot reaches every position instantly and welds seam after seam, non-stop, at a constant speed and consistent quality.

And it watches your work: Solo detects fabrication errors, warns the operator and cancels the welds of misplaced parts – a wrong part never gets a wrong weld.

The Process

LOAD
↓
SCAN
↓
VERIFY
↓
WELD
↓
UNLOAD



Layout (top view) – highlighted: Solo

Key Features

12,000 mm
Maximum workpiece length
Optional: 15,000 / 18,000 mm

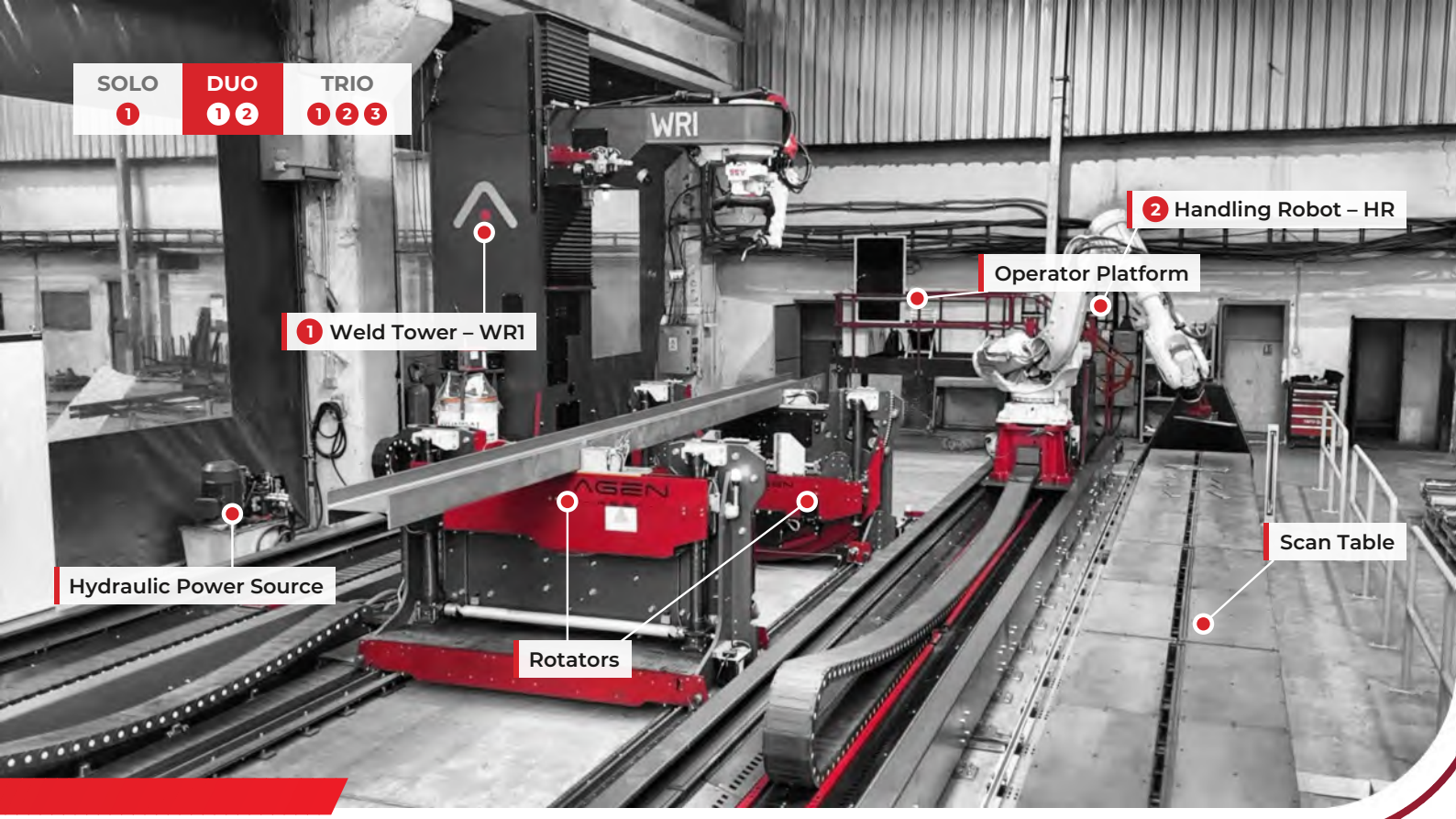
6,000 kg
Assembly weight – HD

4,000 kg
Assembly weight – LD
LD / HD explained on page 7

Crane / Forklift
Loading method

Single- & multi-layer
Welding

Upgradeable
to AGEN Duo



AGEN DUO | 2 robots · automatic fit & weld

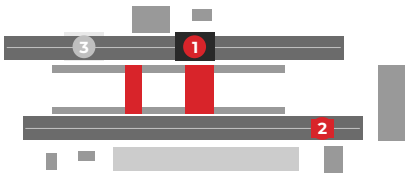
TWO ROBOTS. FIT & WELD.

The AGEN RSSA Duo is an advanced robotic system designed to streamline structural steel assembly with precision and efficiency. Equipped with two industrial robots – a fitting robot for precise alignment and positioning, and a welding robot for strong, consistent welds – this system significantly enhances production speed and quality.

By automating both fitting and welding, AGEN RSSA Duo reduces labor costs, minimizes errors, and ensures repeatable, high-quality results. Its cutting-edge technology helps manufacturers increase productivity, improve workflow efficiency, and stay ahead in the competitive steel fabrication industry.

The Process

LOAD
↓
SCAN
↓
FIT
↓
WELD
↓
UNLOAD



Layout (top view) – highlighted: Duo

Key Features

2 robots
Fitting robot + welding robot

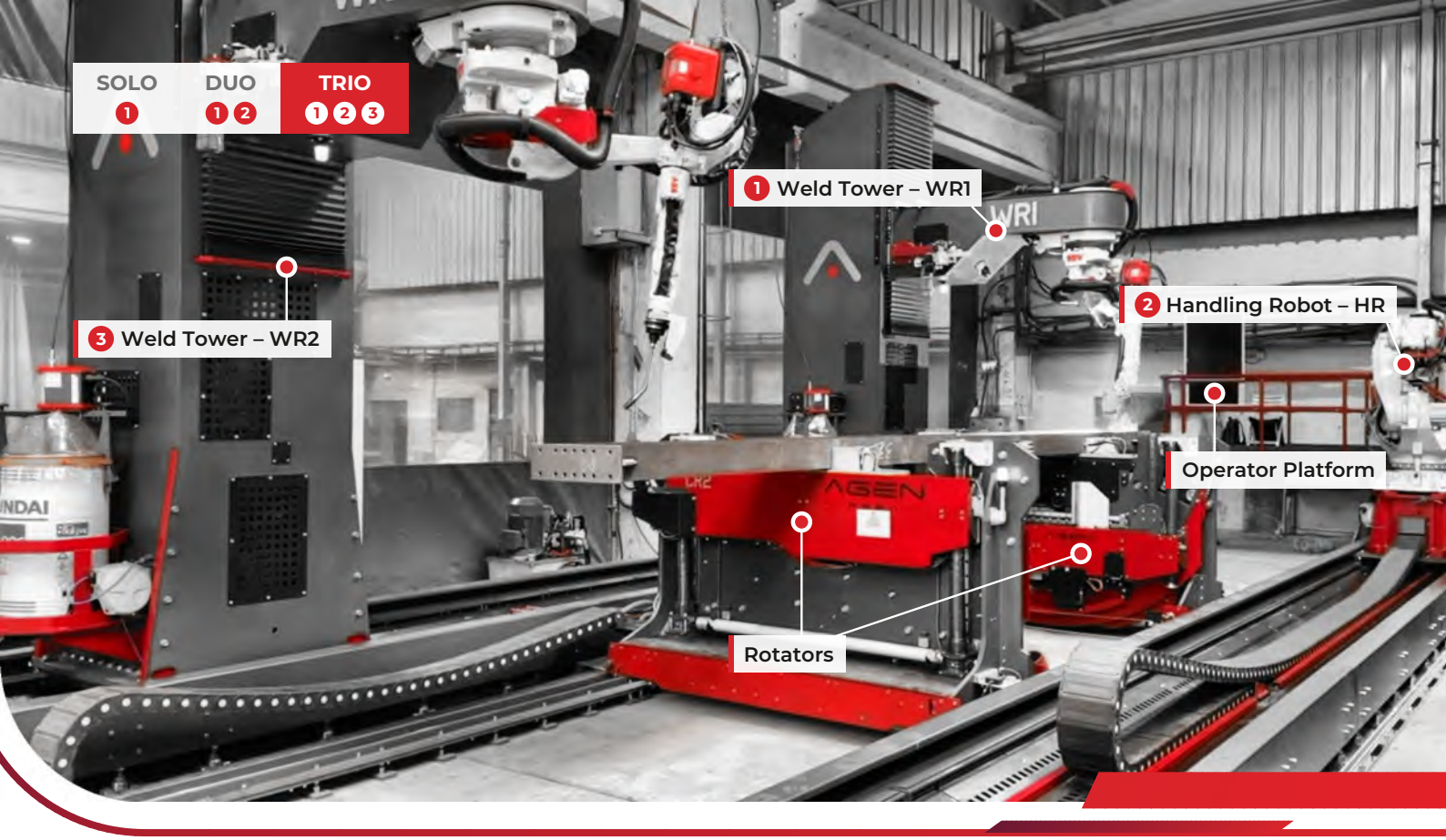
12,000 mm
Maximum workpiece length
Optional: 15,000 / 18,000 mm

up to 6,000 kg
Assembly weight (HD / XD)
LD: 4,000 kg

LD · HD · XD
Available versions
Explained on page 7

200 / 300 kg
Handling robot payload
LD / HD: 200 kg · XD: 300 kg

Upgradeable
to AGEN Trio



AGEN TRIO | 3 robots · fit & weld, 2 weld towers

THREE ROBOTS. TWO WELD TOWERS.

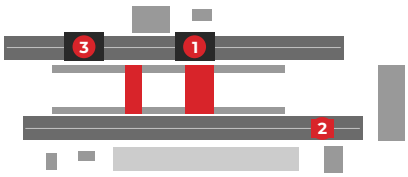
The AGEN RSSA Trio takes robotic steel fabrication to the next level, enhancing efficiency and reducing production time with its three industrial robots – one fitting robot for precise alignment and two welding robots for faster, simultaneous welding.

By utilizing dual welding robots, AGEN RSSA Trio cuts weld time significantly, ensuring continuous operation and minimizing idle time for the fitting robot. This optimized workflow reduces bottlenecks, increases throughput, and maximizes efficiency in structural steel assembly.

With faster cycle times, reduced labor costs, and consistent weld quality, AGEN RSSA Trio helps manufacturers boost productivity, improve workflow efficiency, and stay ahead in the competitive steel fabrication industry.

The Process

LOAD
↓
SCAN
↓
FIT
↓
WELD
↓
UNLOAD



Layout (top view) – highlighted: Trio

Key Features

3 robots
1 fitting + 2 welding robots

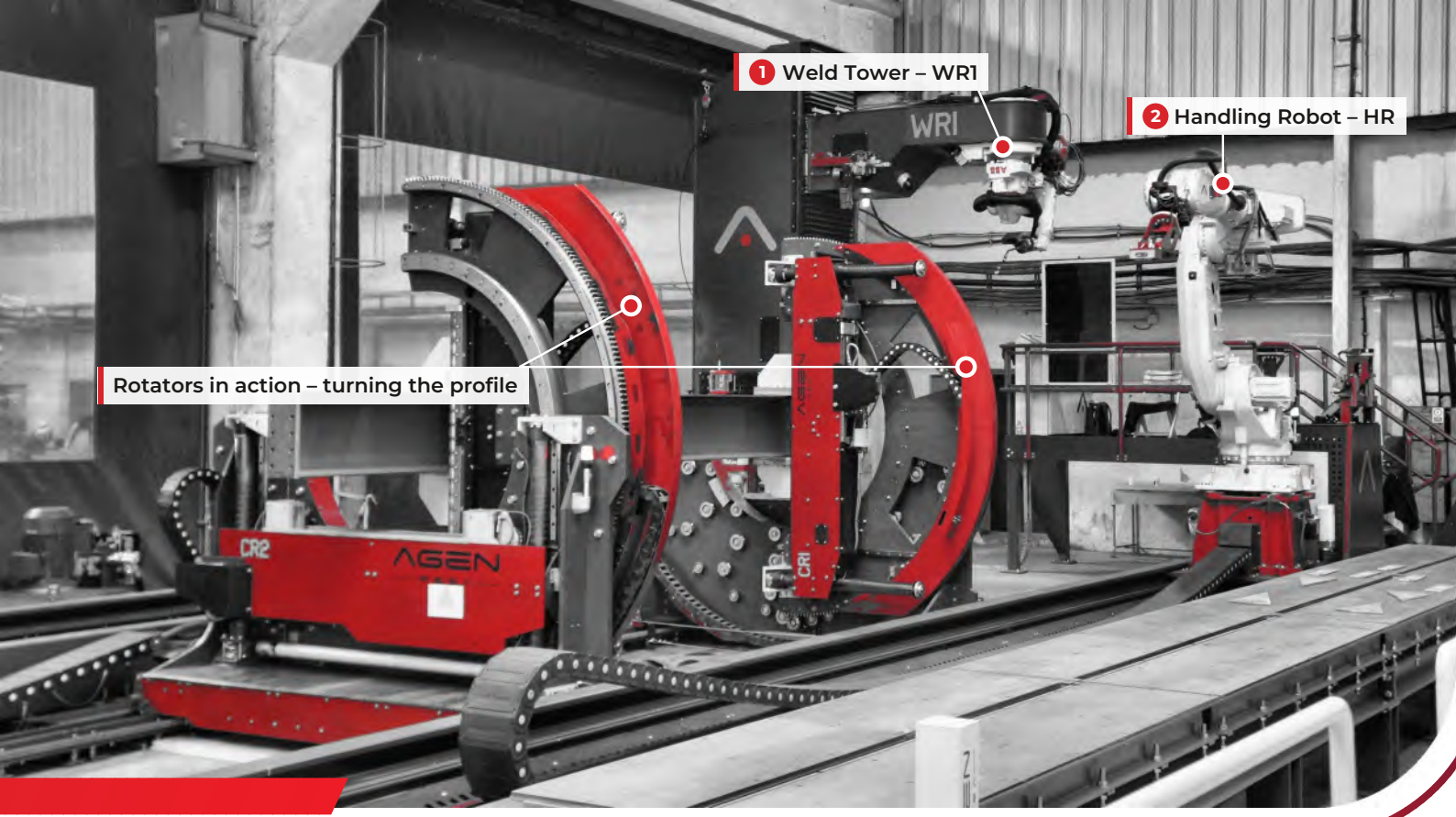
2 weld towers
Simultaneous welding

12,000 mm
Maximum workpiece length
Optional: 15,000 / 18,000 mm

up to 6,000 kg
Assembly weight (HD / XD)
LD: 4,000 kg

LD · HD · XD
Available versions
Explained on page 7

200 / 300 kg
Handling robot payload
LD / HD: 200 kg · XD: 300 kg



AGEN RSSA SOLO · DUO · TRIO

LD · HD · XD

AGEN Duo and Trio come in three versions; AGEN Solo (no handling robot) in LD and HD.

LD Light Duty

Flippers
up to 800 mm

4,000 kg
assembly capacity

200 kg
handling robot

Designed for smaller assemblies, the LD model features high-precision flippers capable of rotating steel profiles up to 800 mm. With a 4-ton assembly capacity and a 200 kg handling robot payload, it offers an efficient and cost-effective solution for lighter fabrication needs.

HD High Duty

Rotators
up to 1,100 mm

6,000 kg
assembly capacity

200 kg
handling robot

Engineered for larger assemblies, the HD model includes rotators that can handle steel profiles up to 1,100 mm. Supporting 6-ton assemblies with a 200 kg handling robot payload, it ensures robust performance and reliability in demanding fabrication environments.

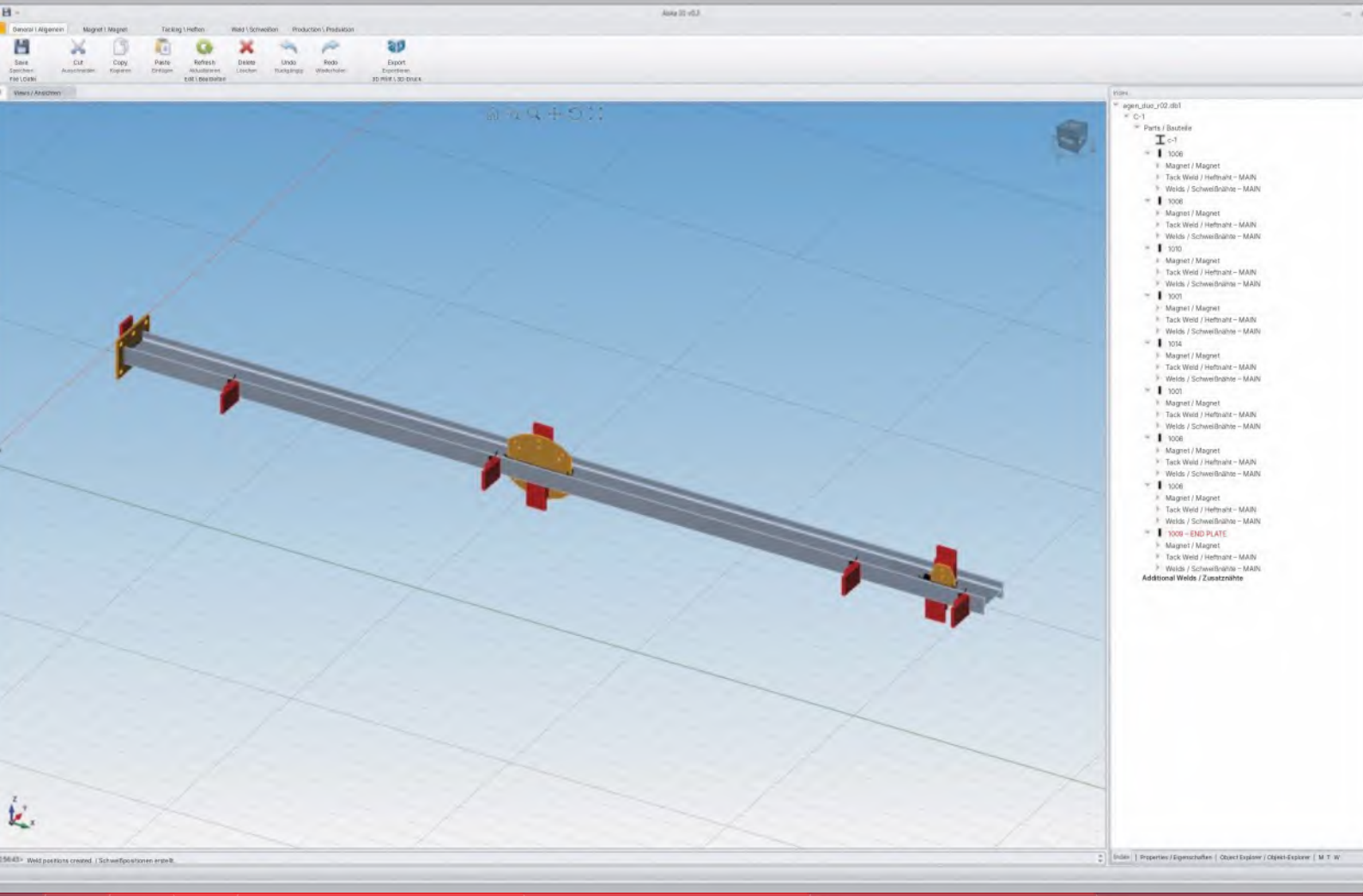
XD Extra Duty

Rotators
up to 1,100 mm

6,000 kg
assembly capacity

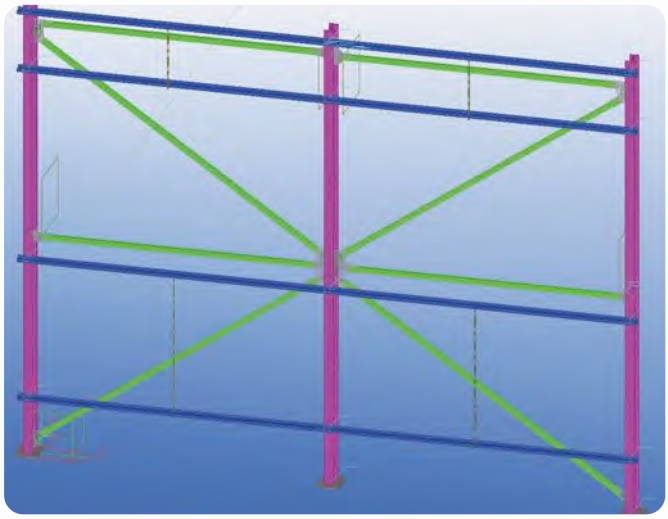
300 kg
handling robot

Built for heavier and more complex assemblies, the XD model retains the 1,100 mm rotator capacity and 6-ton assembly weight of the HD model but features an upgraded 300 kg handling robot payload. This higher capacity is specifically designed to handle larger and heavier steel plates, ensuring greater flexibility and efficiency in structural steel fabrication.



EXPORT & IMPORT

Our software makes it simple...



Export your BIM/CAD model from Tekla Structures, SDS/2, Advance Steel, etc., using our export module.

AgenQ, our design software, automatically detects the magnet, tack, and weld positions, as well as optional stud weld positions. It also features **advanced collision-check algorithms**.
For most assemblies, the entire process takes only a couple of minutes. You can not only add, delete, stretch, or change the thickness of welds, but also modify weld parameters. It's that easy!

AgenQ then prepares the data and imports it directly into the machine – ready for production.





SCAN

Place plates, angles, and profiles on the table. The robot picks up the scanner and scans the entire table.

Simultaneously, the beam scan process begins, validating the main profile by checking its width and length.

After the scanning process, our software initiates the auto-matching process. It creates work orders, and the flip device flips the plates if necessary.

FIT & TACK

The new era for fitting.

Fitting and tack welding run completely unattended. Before every fit, beam deformation is measured and compensated, while high-precision sensors find the exact spot for each tack weld.

200 kg
max. plate weight
AGEN LD / HD

300 kg
max. plate weight
AGEN XD

±1.5 mm
total fitting tolerance,
deformation compensated





WELD

High-quality welds.

The Fronius power source is an industry leader in its field. WeldCube makes traceability easier.

Throat thicknesses ranging from a3 to a8 for single-layer and a8 to a15 for multi-layer can be achieved. Tandem torches* are also supported, making the process much faster than conventional methods.

The torch cleaning unit cuts the wire, cleans the nozzle, sprays anti-spatter solution, and calibrates the torch automatically. The resulting welds are second to none.

* Tandem torch: tailored option, available on request.





TECHNICAL SPECIFICATIONS

One platform, three configurations. Start with Solo, add the handling robot for fully automatic fit & weld, add a second weld tower for maximum output – every RSSA can be upgraded on site. Available in Light Duty (LD) and High Duty (HD); Duo and Trio also in Extra Duty (XD).

CONFIGURATIONS | Upgrade path

Solo ❶
1 robot · you fit, it welds
LOAD › SCAN › VERIFY › WELD › UNLOAD

›››

Duo ❶❷
2 robots · automatic fit & weld
LOAD › SCAN › FIT › WELD › UNLOAD

›››

Trio ❶❷❸
3 robots · fit & weld, 2 weld towers
LOAD › SCAN › FIT › WELD › UNLOAD

EQUIPMENT BY CONFIGURATION

	SOLO	DUO	TRIO
ROBOTS			
ABB welding robot on weld tower	1	1	2
ABB handling robot, 200 kg payload (XD: 300 kg)	○	●	●
Linear tracks, 18 m	1	2	2
FIT & TACK			
Automatic fitting & tack welding	○	●	●
Plate table 1,000 × 8,000 mm with laser scan	○	●	●
Flip device for plates	○	●	●
Magnet tool Mag No.1 (70 kg)	○	●	●
WELD & VERIFY			
Assembly scan & fabrication-error detection	●	●	●
Laser touch sensing	●	●	●
Torch cleaning & calibration unit	1	1	2
Rotators / positioners (2 pcs) · LD: flippers	●	●	●
CONTROL			
Operator panel, 24" multi-touch	●	●	●
AgenQ software – CAD import (Tekla, SDS/2, Advance Steel)	●	●	●
Upgradeable to	Duo	Trio	Quattro**

● included · ○ not available · numbers = quantity

WORKPIECE RANGE | LD · HD · XD versions

	LD	HD	XD
H profiles (height)	120 – 800 mm	120 – 1,100 mm	120 – 1,100 mm
I profiles (height)	120 – 800 mm	140 – 1,100 mm	140 – 1,100 mm
W profiles	W6×13 – W33×176	W6×13 – W30×391	W6×13 – W30×391
Box sections	100 – 300 mm	100 – 600 mm	100 – 600 mm
Max. workpiece length	12,000 mm*	12,000 mm*	12,000 mm*
Max. assembly weight	4,000 kg	6,000 kg	6,000 kg
Workpiece turning	Flippers	Rotators	Rotators
Handling robot payload	200 kg	200 kg	300 kg

* Standard length. 15,000 mm and 18,000 mm available as options for all configurations. Handling robot applies to Duo and Trio. Sizes refer to profile height. Imperial: 120 mm = 4.7", 140 mm = 5.5", 800 mm = 31.5", 1,100 mm = 43.3".
** AGEN Quattro: tailored configuration, available on request.

DETAILED SPECIFICATIONS

COMPONENTS

ROBOTIC WELDING POWER SOURCE

Power source	**Fronius, synergic**
Rated current / cooling	**500 A, water-cooled**
Wire diameter	**1.2 – 1.6 mm**
Torch bend angle	**22° / 33°**
Wire drum capacity	**250 kg**
Shielding gas	**Ar + 5% CO_2 / Ar + 18% CO_2**
Weld traceability	**Fronius WeldCube**

TORCH CLEANING UNIT

Wire cutting, reaming, anti-spatter	**Included**
Torch measurement & calibration	**Included**

CONTROL

Operator panel	**24" multi-touch screen**

SCANNING & SENSING

Plate laser scan tolerance	**± 0.50 mm**
Laser touch sensing – linearity	**0.4 mm**
Laser touch sensing – max. distance	**500 mm**

POSITIONING & ACCURACY

Rotators / positioners	**2 pcs**
Rotator max. capacity	**6,000 kg**
Total system tolerance	**± 1.5 mm**

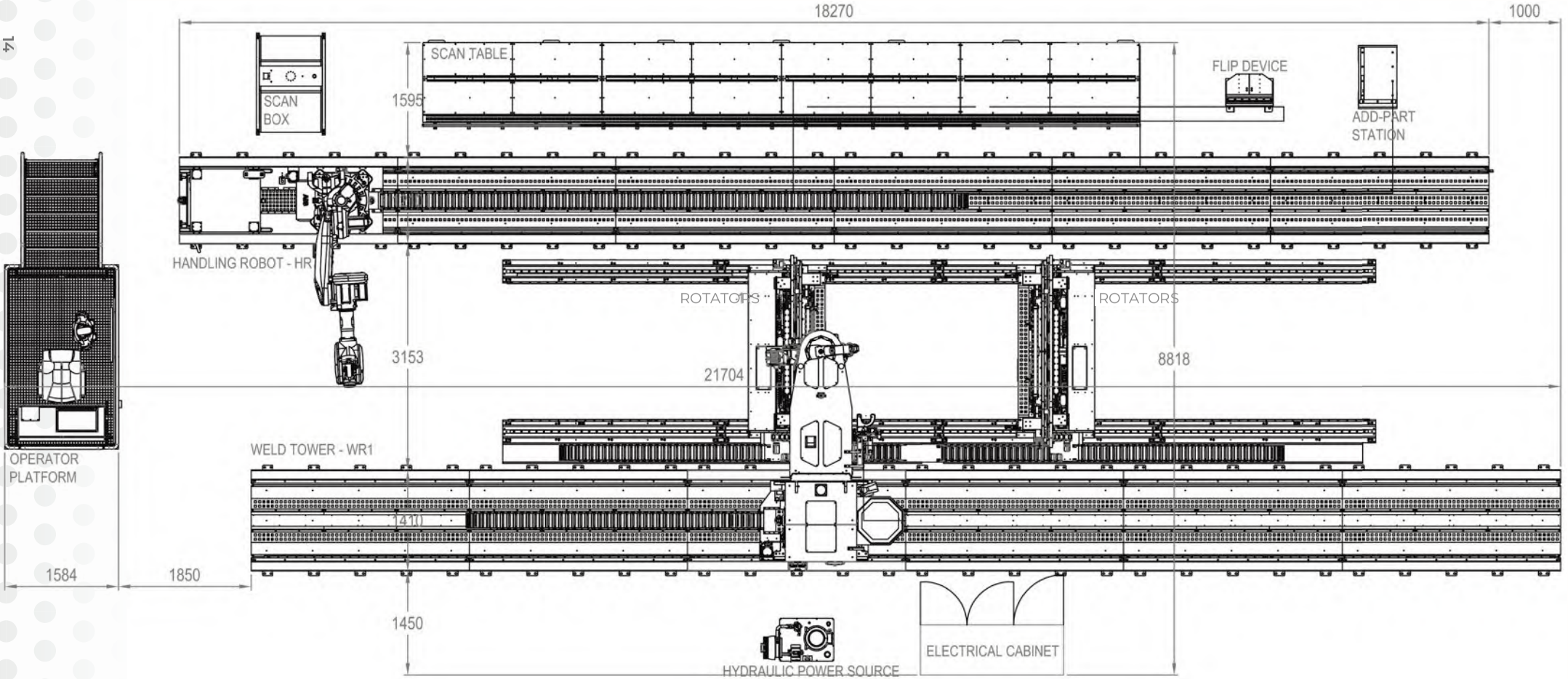
HANDLING (DUO / TRIO)

Plate table	**1,000 × 8,000 mm**
Plate flipping	**Included**
Max. plate weight	**200 kg (XD: 300 kg)**
Magnet tool Mag No.1	**70 kg · Included**
Magnet tool Mag No.2	**200 kg · Optional**

OPTIONS

Upgrade Solo → Duo (handling robot)	**Optional**
Upgrade Duo → Trio (second weld tower)	**Optional**
15,000 mm profile length	**Optional**
18,000 mm profile length	**Optional**
Magnet for small parts – Mag No.0	**Optional**
Haunched frame application	**Optional**
Angle profile processing as ADD part	**Optional**
Additional workstation licence or additional CAD support	**Optional**
Pre-heating unit	**Optional**
Infeed conveyor	**Optional**
Outfeed conveyor	**Optional**
Lights-out manufacturing – full remote control **	**On request**

** Special option on request. Requires prior years of operation with a standard AGEN RSSA and close coordination with our team.



AGEN RSSA

MACHINE LAYOUT

Layout shown: AGEN RSSA Duo, 12,000 mm



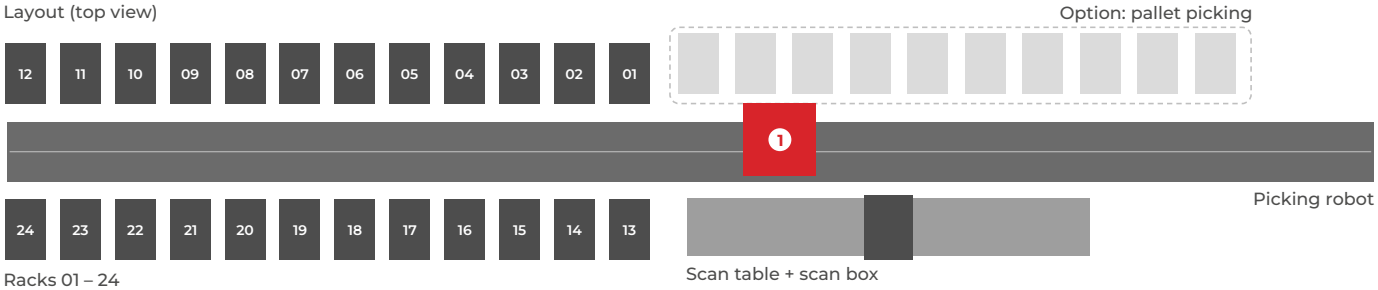
AGEN SEGRA | Automated Plate Sorting System

MIXED IN. SORTED OUT.

Every plate in the right box, for the right assembly. AGEN Segra is a robotic plate sorting system that identifies and sorts plates from mixed pallets into assembly-specific boxes. Automated robotic handling prepares components for the next production stage.

The Process

1 LOAD → 2 SCAN → 3 PICK → 4 SORT



Let’s build the future together.

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