



Flexible base for special-purpose machines

Today's challenges in industry

To remain competitive, factories must be equipped with production means whose return on investment are often incompatible with the **instability of market needs** :

shorter product life
cycles

rapid changes in
product mix

unpredictable
quantities

In the current industrial world, market needs are more and more uncertain and unstable : shortened product life cycle, rapid changes in product mix, unpredictability of quantities...

Our solution : **crescendo**

How to reconcile flexibility and productivity ?

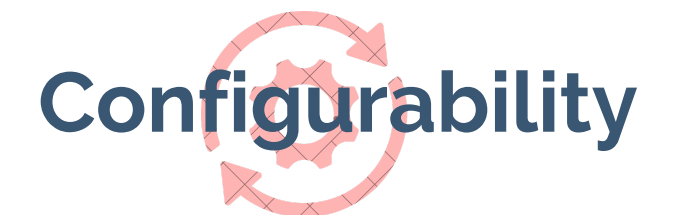
Boost the capacity of your line to match your clients current needs.



Crescendo



Crescendo is an innovative concept for standard automated workstations that are both **modular and adjustable**. It uses the latest technologies for better **performance and connectivity**.



crescendo

The range is based on
two platforms :

The two crescendo platforms can be
combined in one single line for the best
performance/cost ratio.

One crescendo

Fully closed workstations
enabling compactness for all
processes



Open crescendo

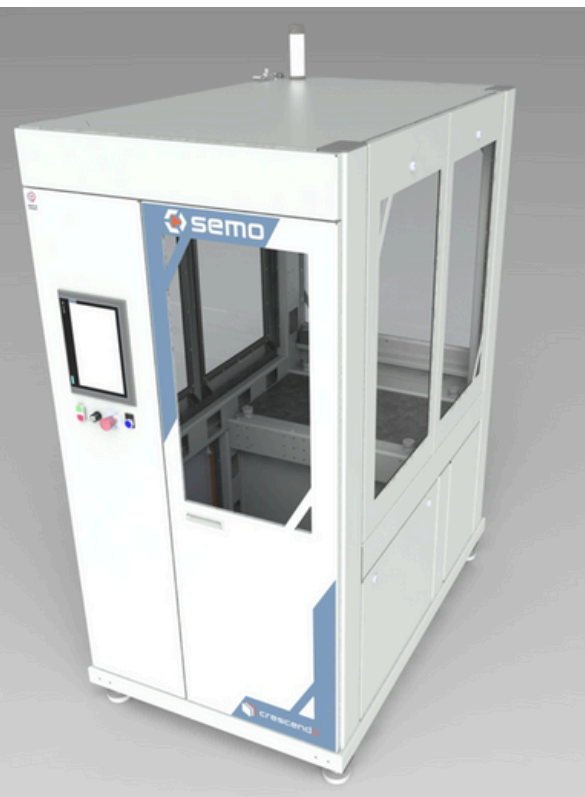
Open access workstations
enabling both safe and easy
access to processes



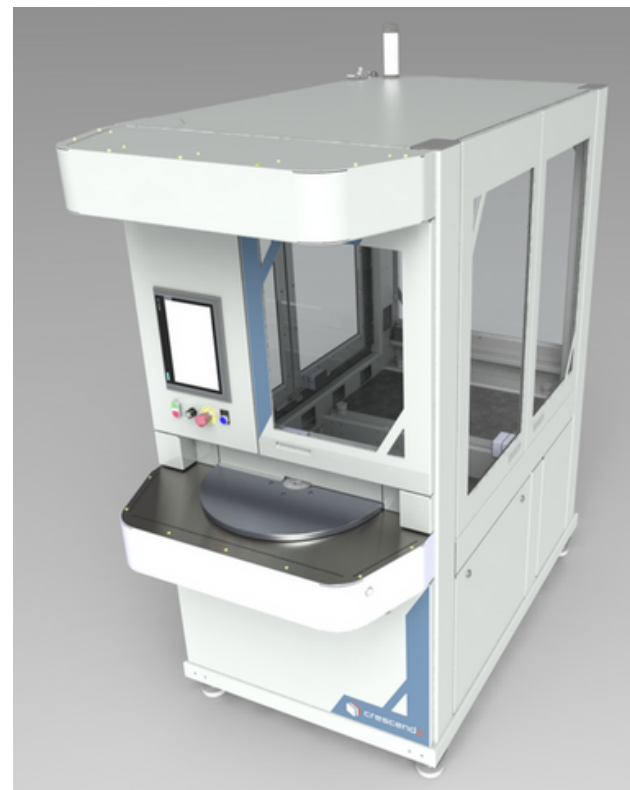
One crescendo: Concept

PROCESS MODULE

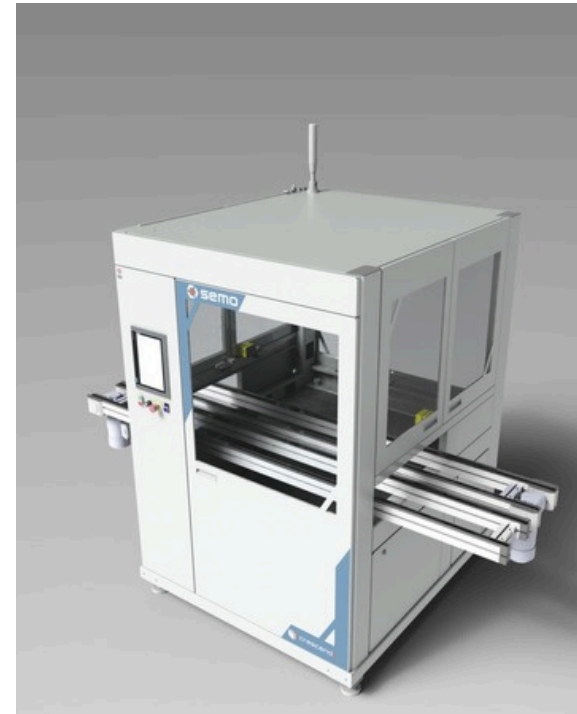
TRANSITIC SOLUTION



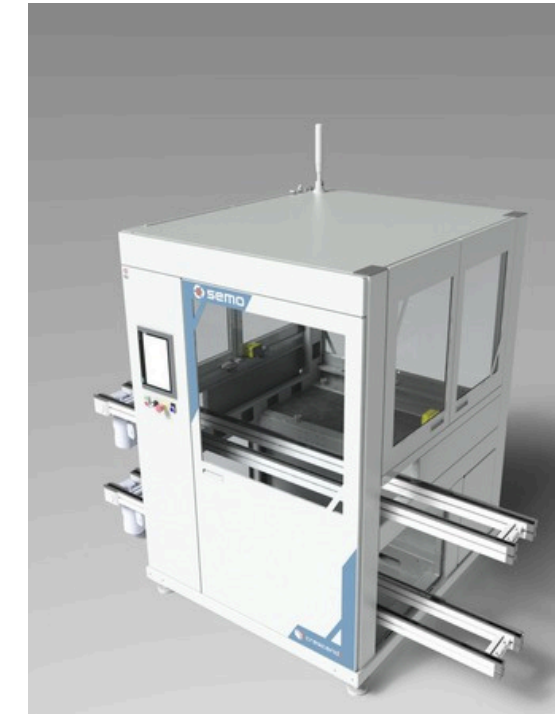
OR



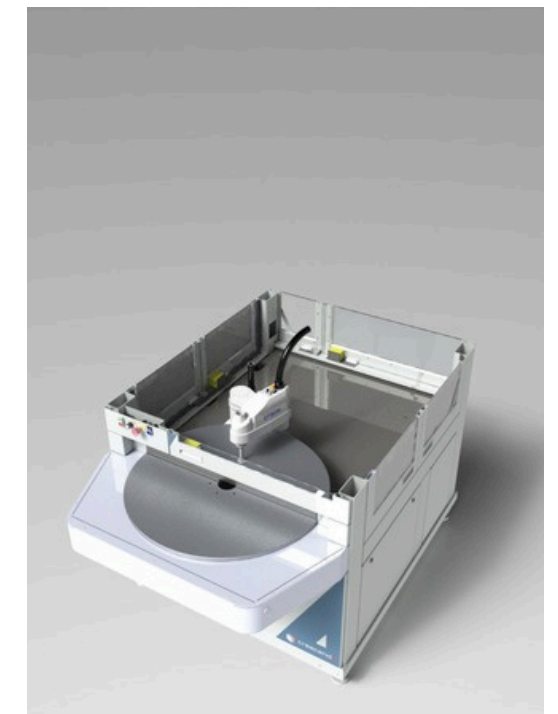
+



OR



OR



Straight

Turntable

Front/back
conveyors

Sup/Inf
conveyors

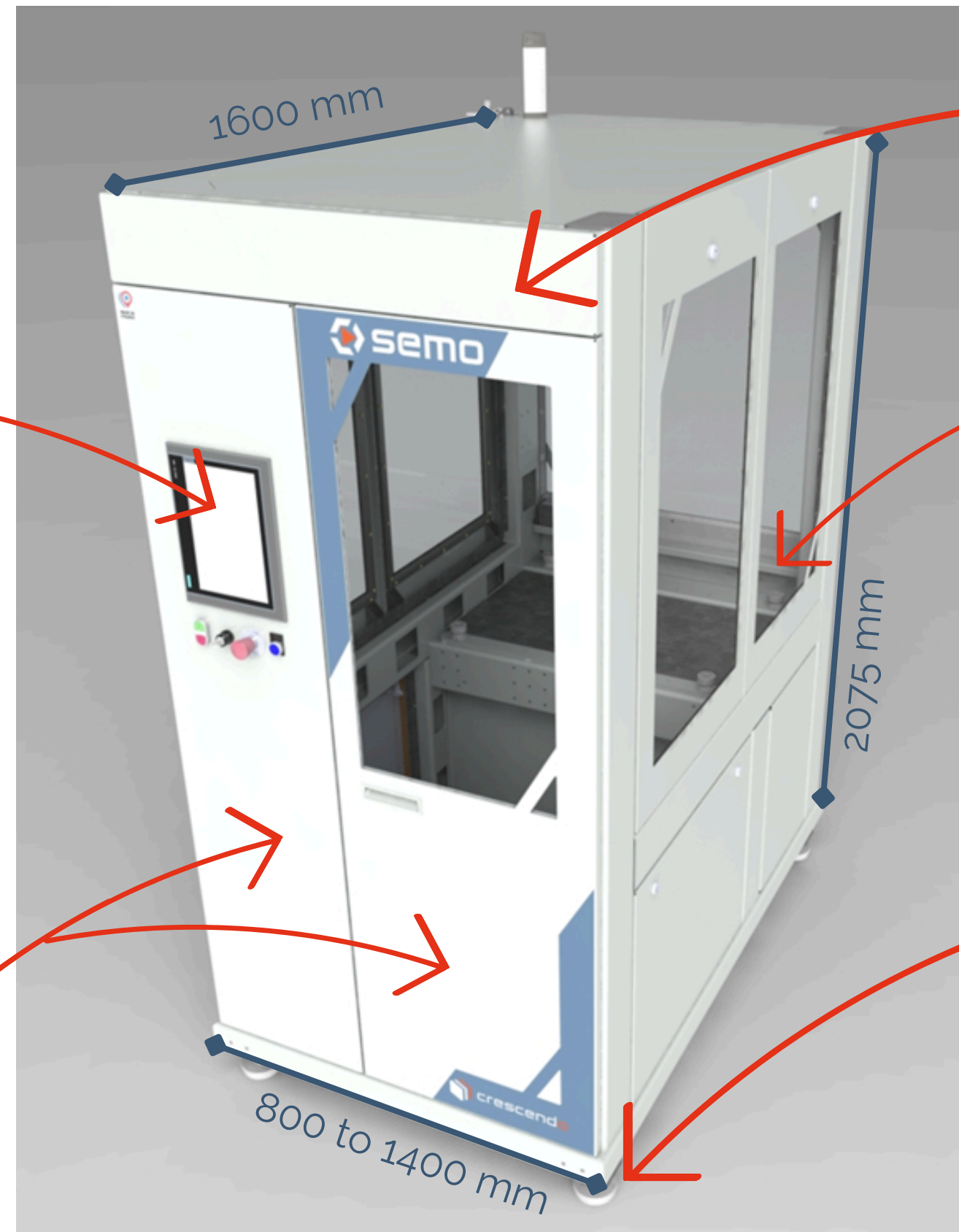
Internal
transitic

- **Pallets size** : 160x160mm, 240x240mm, 240x320mm.
- **Optional vertical indexing**

One crescendo: Straight version

12 inc touch screen HMI :
ergonomic monitoring

Hinged front doors :
secured manual and
visual access



Upper display pannel :
customised identification

Blind or glass window doors :
secured manual and visual
access

Standing feet :
easy forklifting

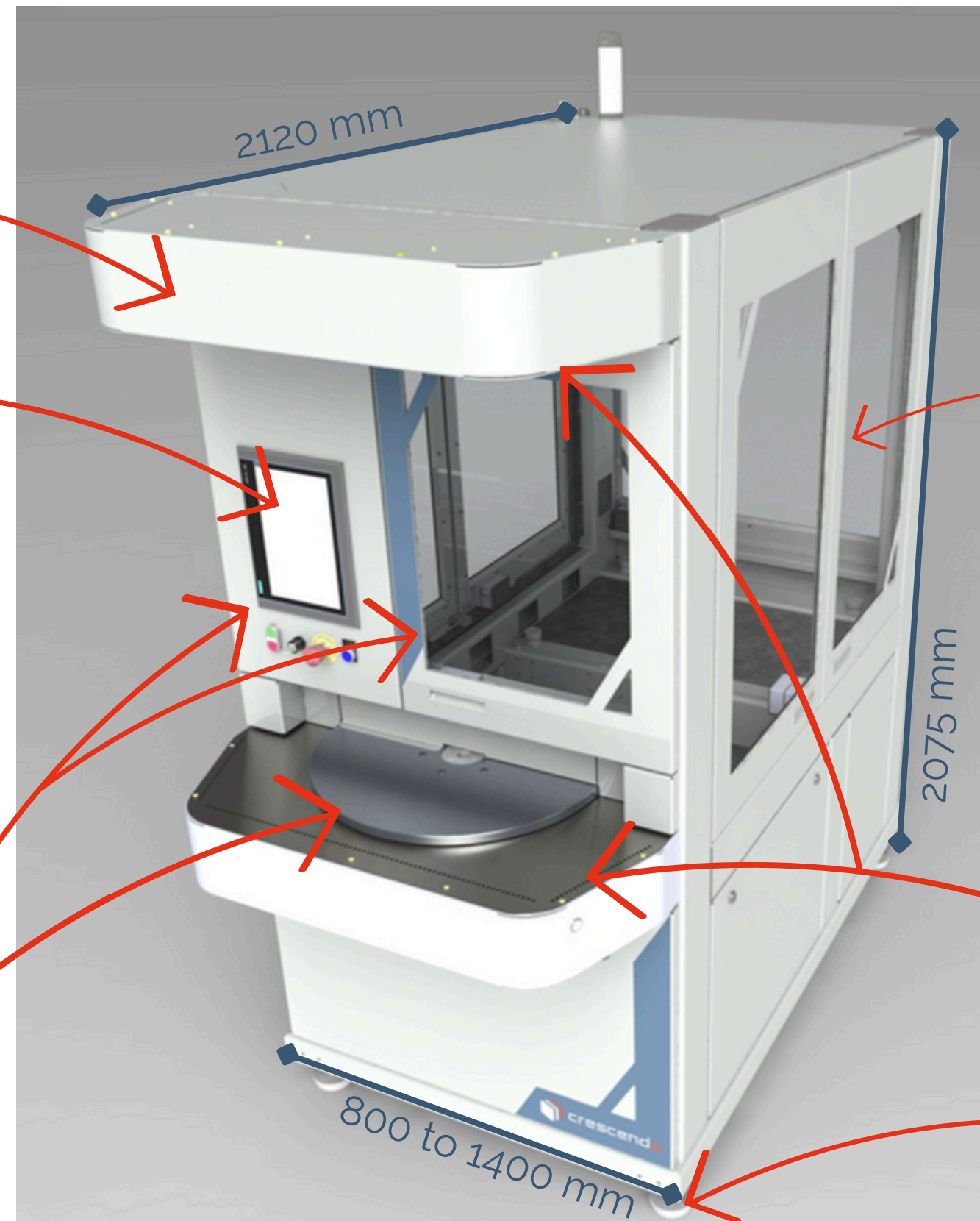
One crescendo: Turntable version

Upper display pannel :
customised
identification

12 inc touch screen HMI :
ergonomic monitoring

Hindged front doors :
secured manual and visual
access

2 Position turntable



Blind or glass window doors :
secured manual and visual
access

Top and bottom
safety light curtain

Standing feet :
easy forklifting

One crescendo: Back design

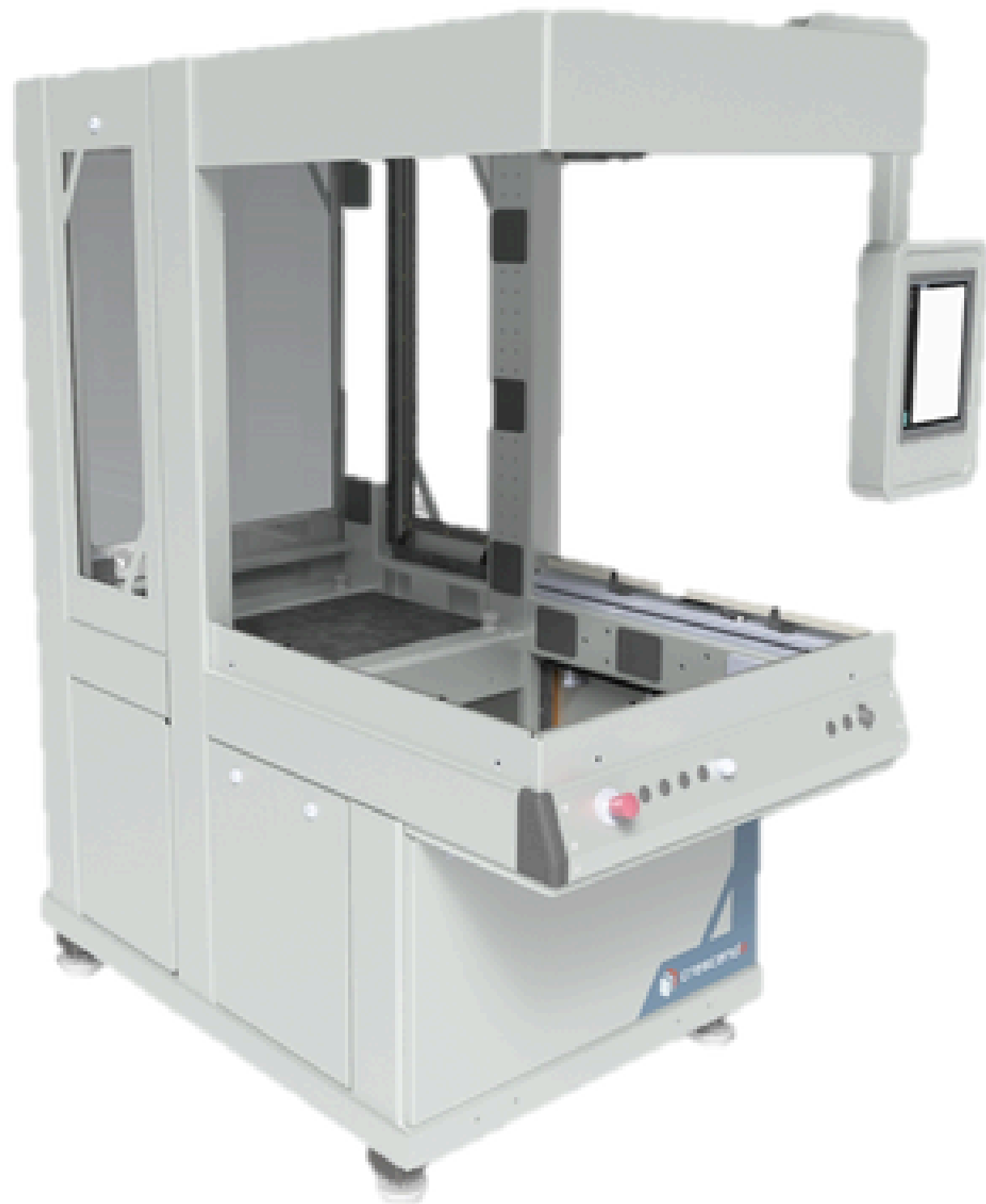


One crescendo: Technical characteristics

- **4 station widths** : 800, 1000, 1200, 1400 mm
- **Depth** : 1600 mm for straight module, 2120 mm for turntable module
- **Height** : 2075 mm
- **If conveyor transitic**: 3 Pallet sizes of 160x160 mm; 240x240 mm; 240x320 mm
- **Accesses** : glass for visual acces or blind for specific applications (for exemple IE laser)
- **Side accesses** : removable panels or hindgde doors
- **System** for aligning and linking workstations with each others
- **ESD** compliant machine
- **Identity** : possibility to apply the customer specific signs on front top
- **Energy** : 3-Phase 220V 50Hz or 110V 60Hz; 6 bar compressed air
- **Ergonomic** operator sit-stand position

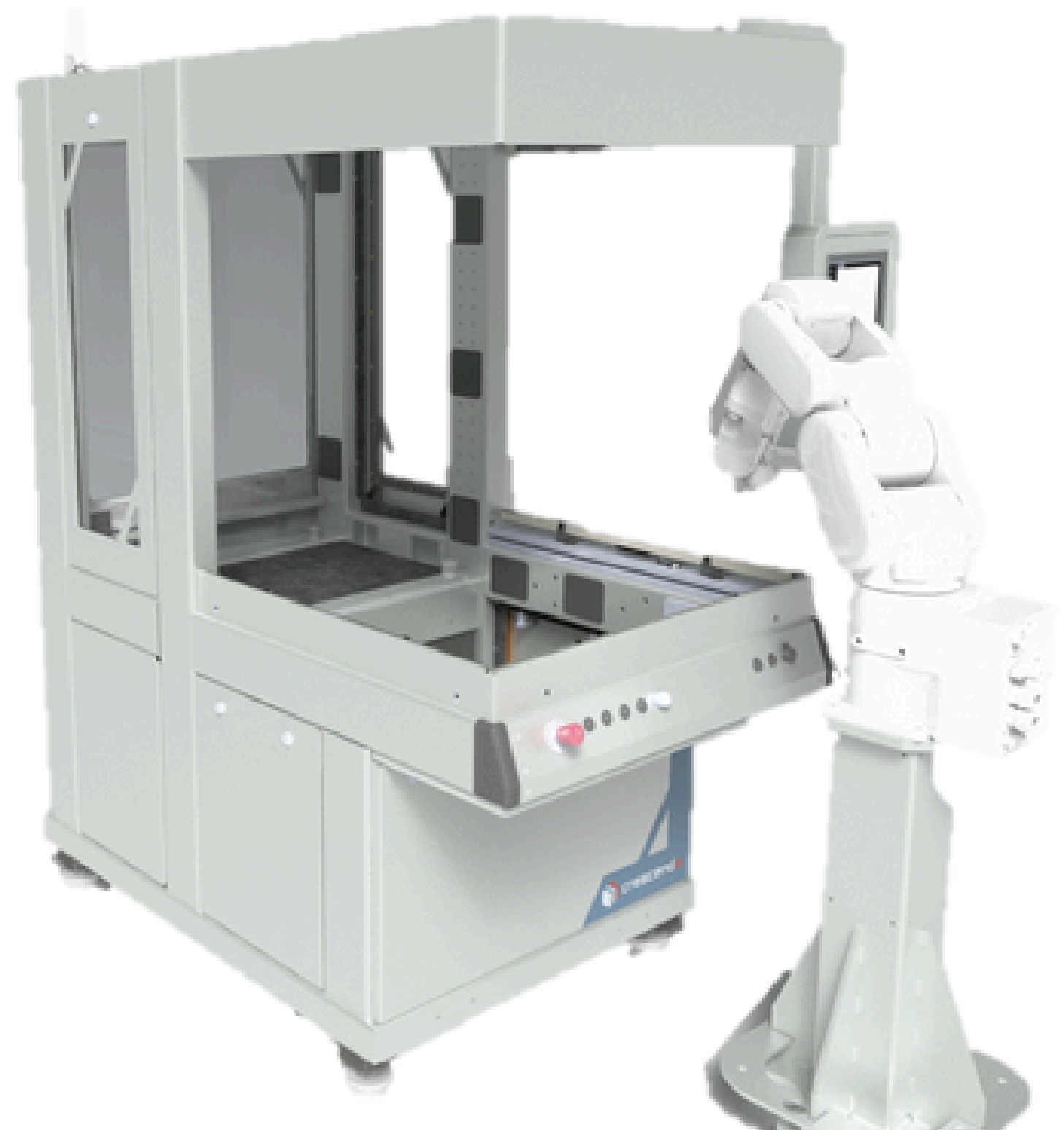
Open crescendo: Concept

PROCESS MODULE

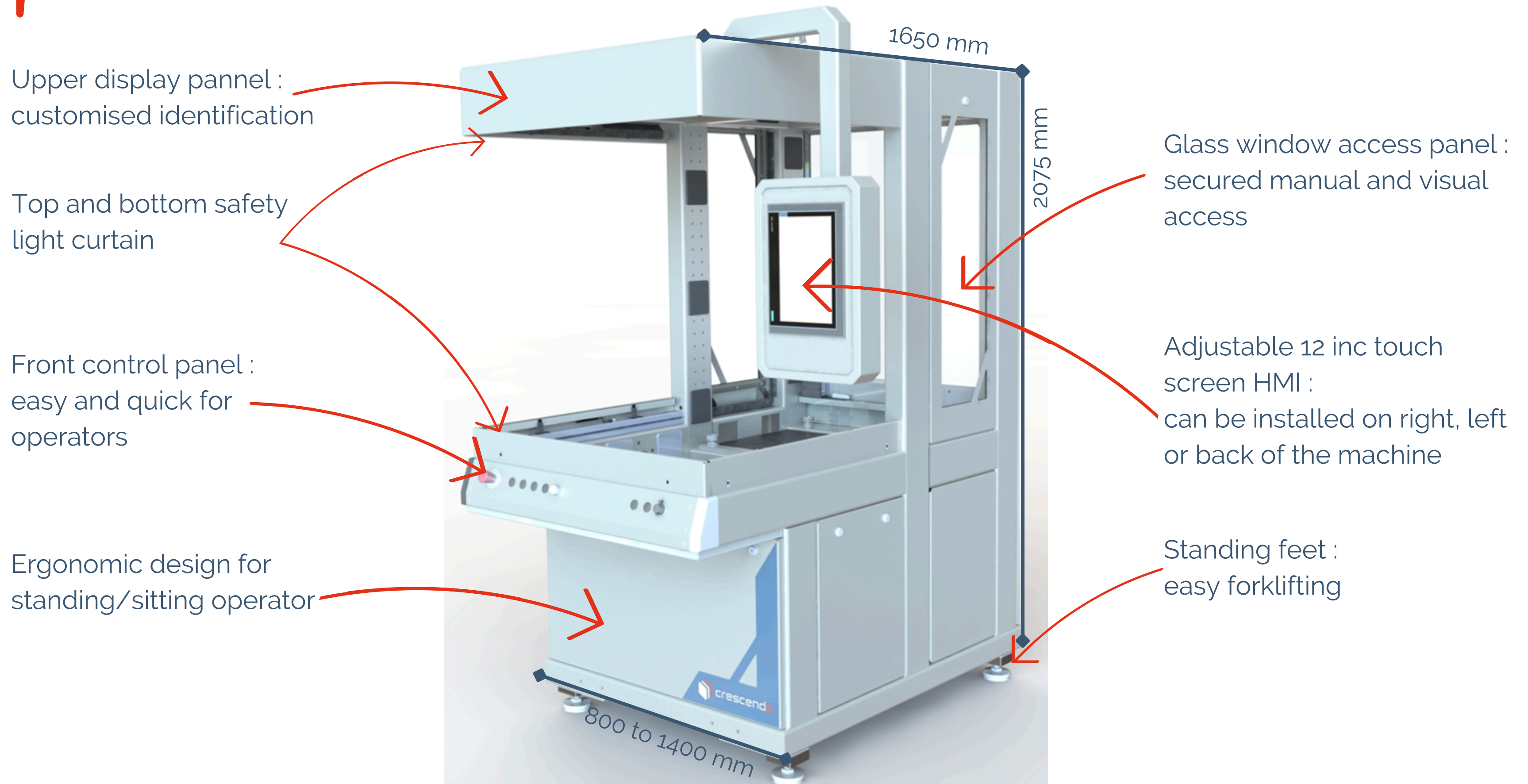


OR

PROCESS MODULE WITH TRANSITIC



Open crescendo : Front design



Open crescendo : Back design



Open crescendo : Technical characteristics

- **4 station widths** : 800, 1000, 1200, 1400 mm
- **Depth** : 1650 mm
- **Height** : 2075 mm
- **IHM Position** : right side, left side or back side
- **Robot and Cobot** compatible
- **ESD** compliant machine
- **Identity** : possibility to apply the customer specific signs on front top
- **Energy** : 3-Phase 220V 50Hz or 110V 60Hz; 6 bar compressed air
- **Ergonomic** operator sit-stand position

crescendo : Extensive process range

Customized processes can be integrated into Crescendo

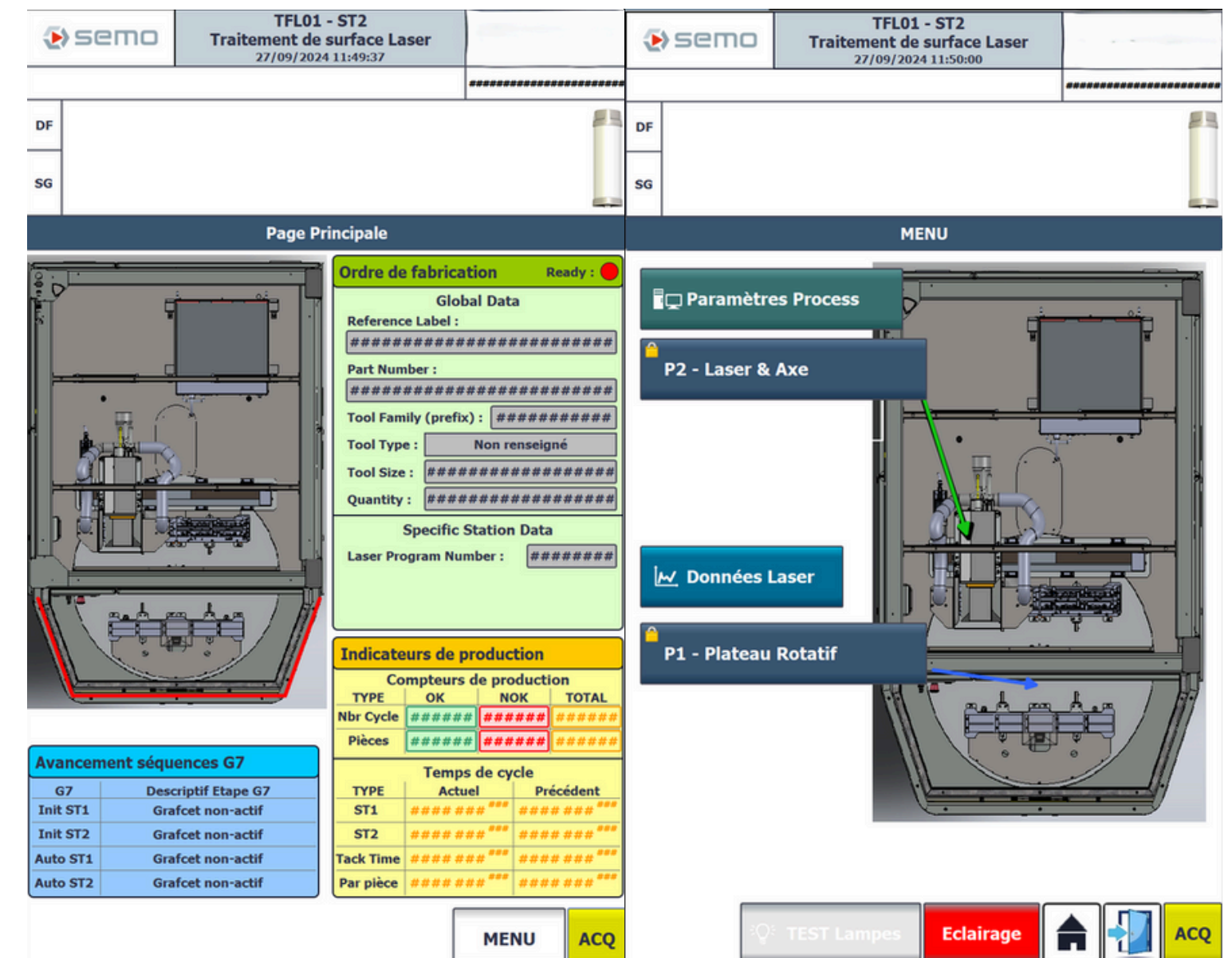
INTEGRATED PROCESSES	TYPICAL EXAMPLES
ASSEMBLY PROCESSES	Plasma treatment, laser welding, electrical welding, dispensing, screwing, pressfit, Hot air riveting/ Heat staking, marking, calibration
CONTROLLING PROCESSES	Functional test, dimensional control, aesthetic control, sealing test, electrical test

- It is possible to integrate more than one process in each Crescendo workstation. For example, front conveyor and back conveyor in the same one crescendo can be used for two processes
- Robots can be integrated into the heavy steel welded workstation, including ceiling-mounted robots.

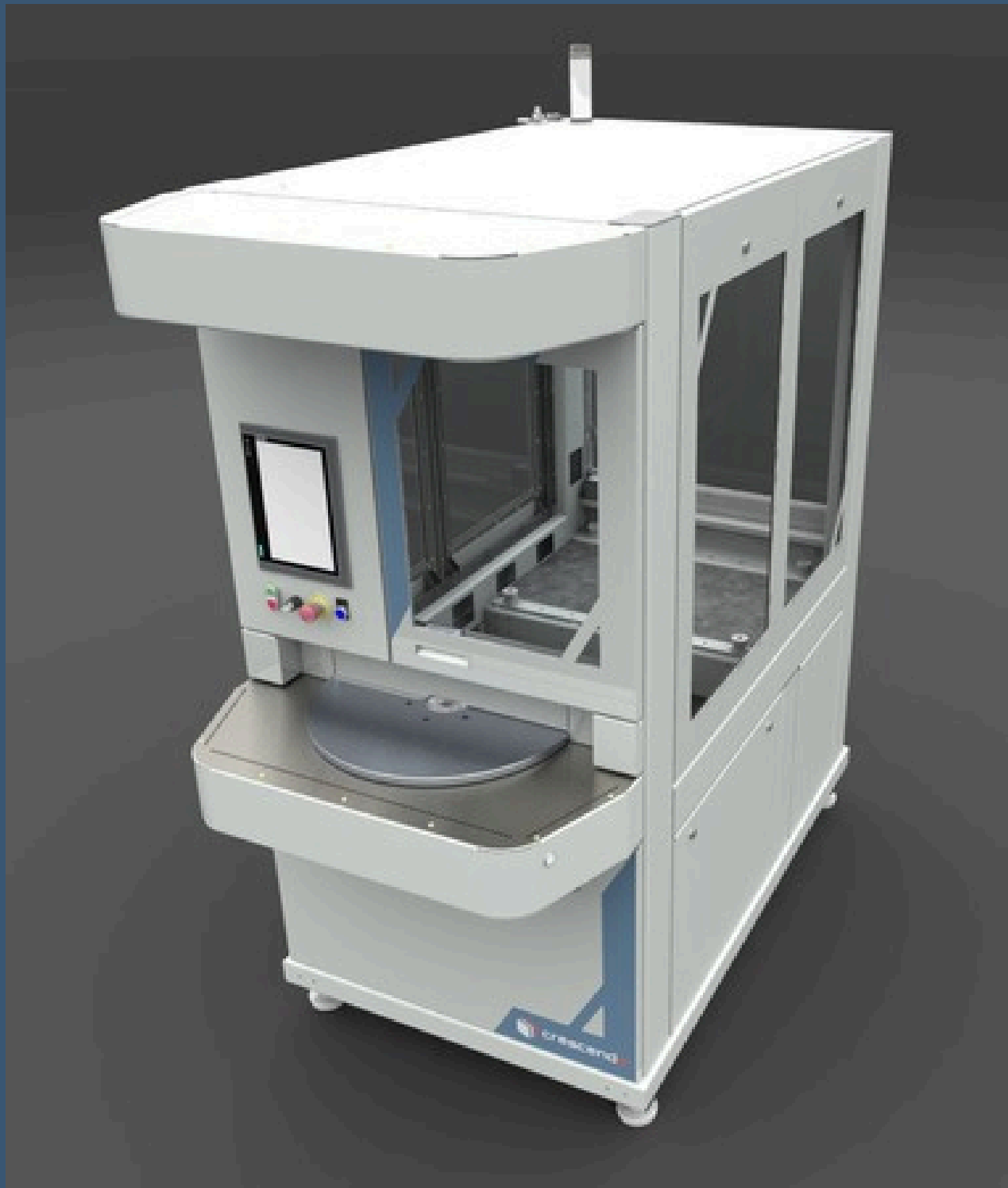
crescendo : Management software

The Crescendo management software is both extensive and versatile.

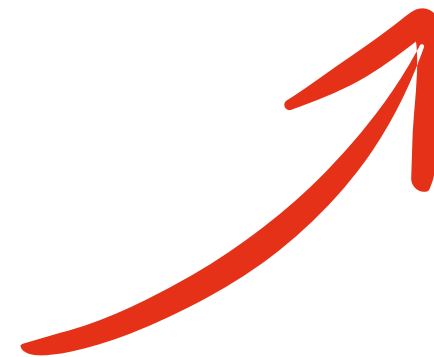
- Management of interlocking between tooling and product identification
- Process, control and test traceability with product identification management
- MES connection with customer network
- Standard HMI interface structure
- Management of the safety interconnection between stations



crescendo : Configuration examples



A **One Crescendo** turntable module can be used as a **stand-alone machine**. It enables safe and ergonomic loading and unloading by an operator or a robot while the another product is being processed. This configuration avoids any **interference** of the operator with the machine process



Turntable stand-alone workstation

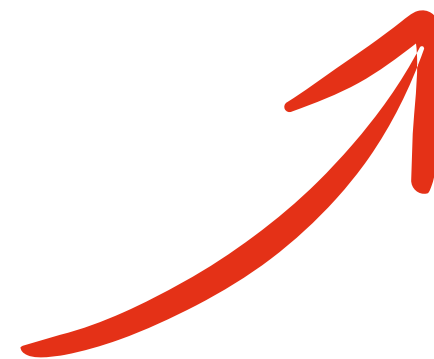
crescendo : Configuration examples



Open stand-alone workstation

An **Open Crescendo** module can be used
as a **stand-alone machine**.

It enables safe and ergonomic loading
and unloading by an operator or a robot.



crescendo : Configuration examples

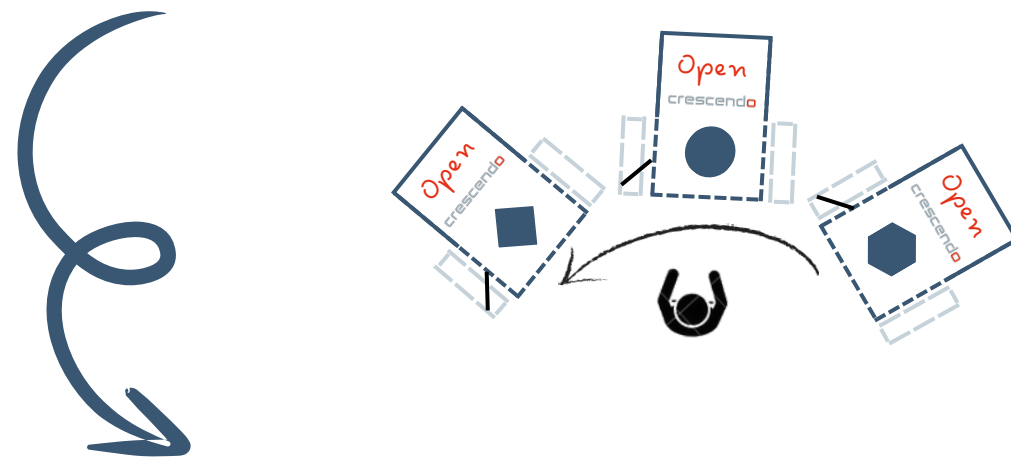


Several **One Crescendo** modules can be **combined to create a fully-automated line**. The operator or robot loads the parts on the first **One Crescendo turntable module**. The parts are then transferred by robots and processed throughout the line before being unloaded in boxes.

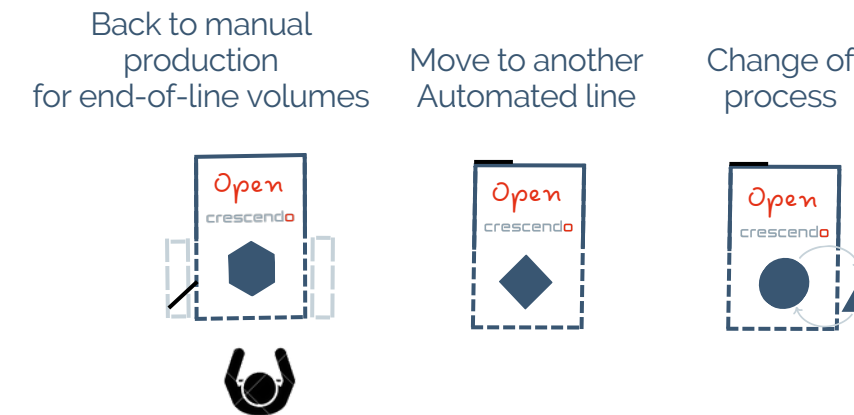
« Integrated » automated line with robots

crescendo : Typical business case

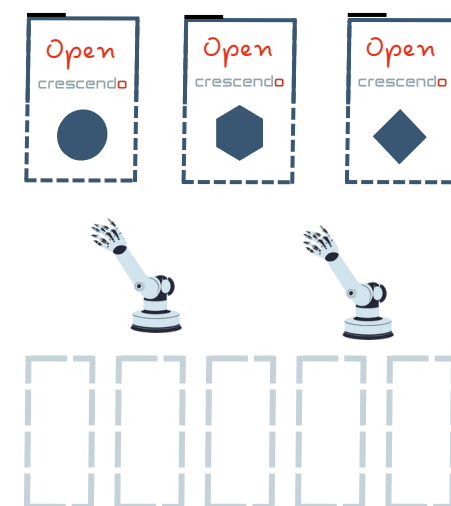
1 Semi-manual production
U-shape line with 3 processes



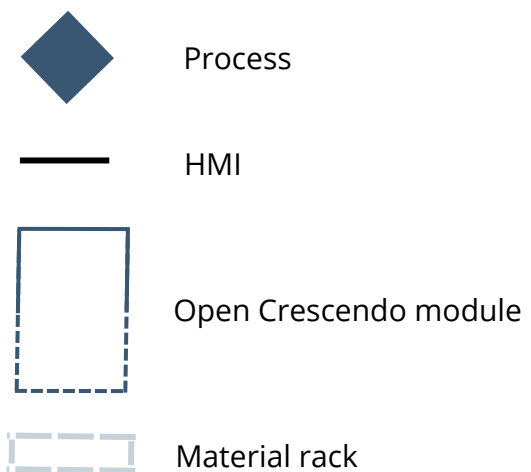
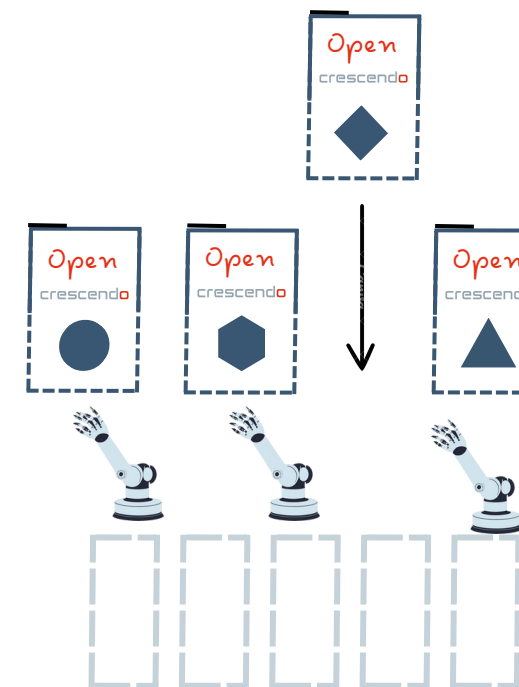
4 Recycling



2 Transfer to fully automated production
Robotic line with 3 processes

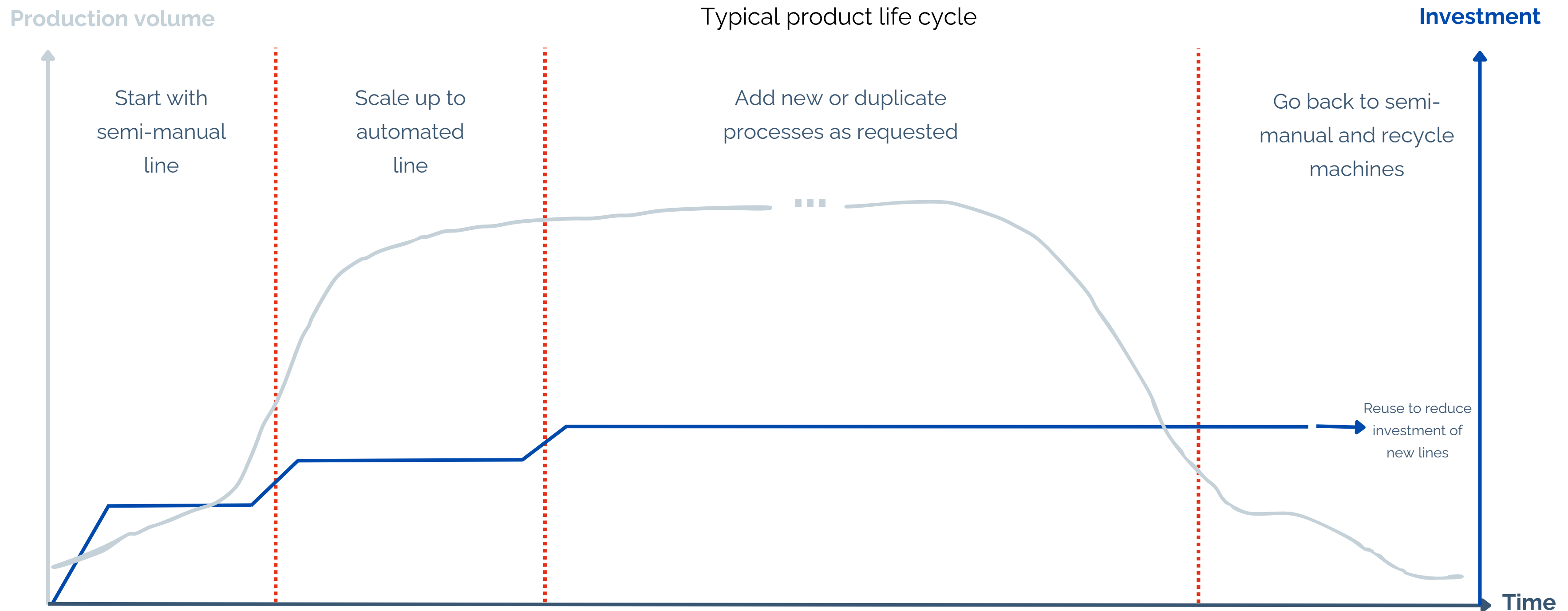


3 Scalability
Addition of one new process or one identical process



crescendo : Typical business case

Invest just enough in your product line to match your market needs ...
 and recycle or reuse to reduce the cost of future product lines



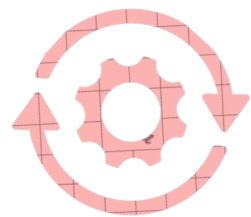
Scalability

Enabling you to invest as effectively as possible and reallocate resources as soon as necessary.



Configurability

Give end-users access to control and manage the system themselves.



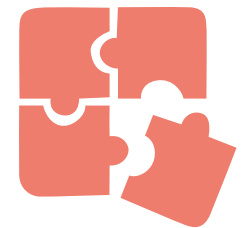
Standardisation

- Rich technical and commercial offering.
- Guaranteeing a high level of reliability within controlled deadlines.
- Durability and upgradeability.



Adaptability

Integrate new processes quickly and easily into an existing line.



Mobility

Reconfigure or move workstations easily in confined environments.



Connectivity

Optimal remote access for fast trouble shooting and connexion to management system



Advantages





10 rue Louis Breguet
31700 Cornebarrieu, FRANCE

+33 5 61 85 55 77

www.semo.fr

Let's contact us at semo@semo.fr