



MTL

OPTICAL MEASURING MACHINES

English Version



**Quality and  
efficiency  
in production**

In our daily life, carrying out an inspection of what are doing confirms a correct working practice and ensures us that we are on the right track.

This is why Vici Vision brings inspection to the place where it provides the greatest advantage: directly on the shop floor.

Increased productivity, improvement in efficiency and flexibility and a reduction in rejection rates are the immediate advantages.

With more than 37 years of experience and a worldwide sales and service network, Vici Vision provides optimal solutions for turned pieces.

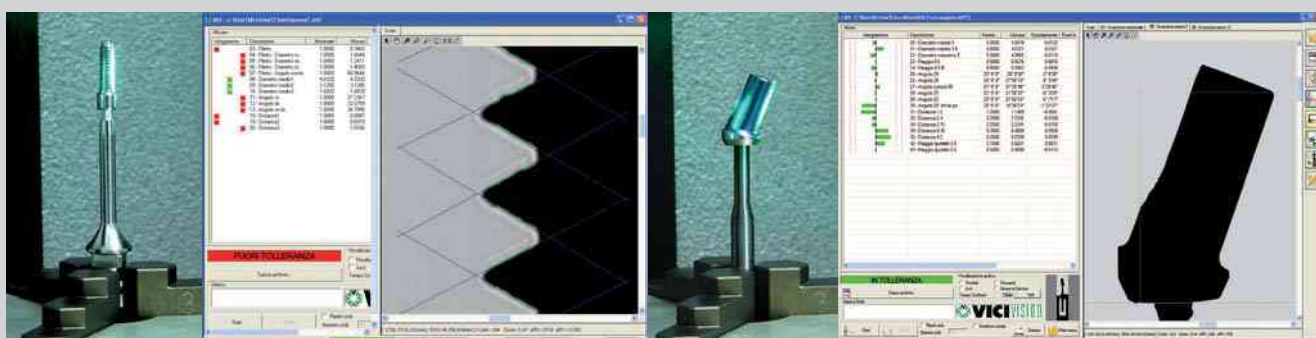
# The best way to measure the smallest components

A CLEAR-CUT SOLUTION FOR DENTAL IMPLANTOLOGY AND BIOMEDICAL TECHNOLOGY.



## MTL X5

- MTL X5 has been specifically designed to measure dental implants, biomedical components, watch parts and micro-mechanical small parts in general.
- The high resolution, one of a kind in its category, detects even the smallest detail, making it an exclusive solution for the production tool industry.
- Its direct access design facilitates loading and unloading of even the most difficult to manage pieces.
- The configuration of stationary parts and moving optics prevents the part from vibrating, moving or falling during measurement.
- No openings or undercuts means that small parts can be easily retrieved if they fall during operation.



# Top of the range performance



## MTL 300 Evo



## MTL 500 Evo

- The Evo range is geared to **top level applications** such as camshafts, turbines and complex elements in general.
- An exclusive "Air flow" cooling system makes the machine usable even in the toughest environments.
- An on board step-master guarantees the correct functioning of the machine.
- Retractable sensors **protect optics** from part damage during loading and unloading and give the operator full range of movement.
- Smooth and accurate upper tailstock movement thanks to the rack and pinion solution.
- Prismatic guides with ball runner blocks guarantee precision over time.



# Easy loading

ERGONOMIC DESIGN FOR USE ON THE SHOP FLOOR.



## Ergon

Optimized ergonomic design.



## Ergon S

Maximum resolution  
for minute details.

- Ergon and X-Stream are designed to measure large and heavy parts on the shop floor.
- Its “Open Top” design allows for the use of loading devices.
- Its unique wide open front facilitates manual loading and unloading.
- Front and side retractable sensors protected during loading and unloading.
- Protective bumpers on sensors.
- Specific devices for protection, oil collection and cleaning operations.



## X-Stream

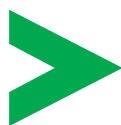
Best solution for heavy duty pieces.  
Larger opening for easy loading  
Up to 60 kg.





All measures  
in a few  
seconds

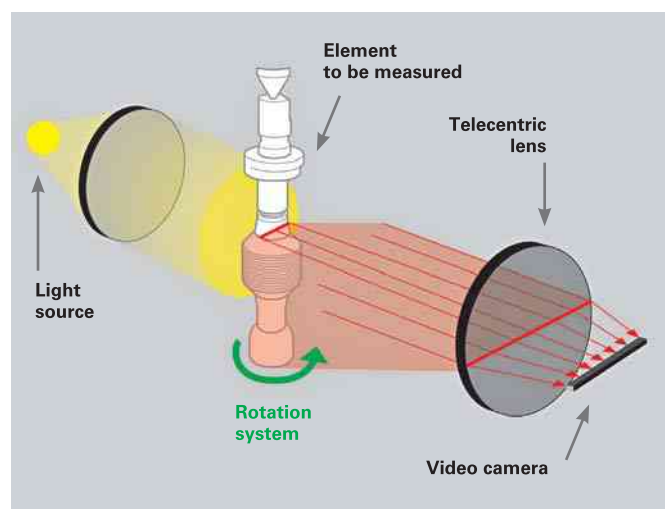
## Fast and more accurate



Quality control can be a costly process in terms of time and labor.

So carrying out all measurements with a single tool means saving time, manpower and improving the accuracy of control. MTL includes the functions of profile projectors, micrometers, roundness gage, etc. eliminating human error in acquiring measurements and allowing operators to manage the acquired data.

Static measurements:	Diameters Lengths Angles Radii Distances and angles between points and lines Mean sphere diameters
Geometric measurements:	Symmetries Parallelisms Orthogonalities 
Thread measurements:	Nominal diameters Internal diameters Mean diameters Crest angles Pitches Roll dimensions 
Shape measurements:	Rotation diameters Circularities Coaxialities Run-out Cylindricities Angular tunings 
Nut measurements:	Keys Asymmetries Angular tunings Distances from profile Distances from tolerance GD&T

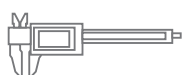


### TRADITIONAL MEASUREMENT SYSTEM

- Measurement from 10 to 30 minutes.
- Data conditioned by human intervention.
- Difficulty of use.
- Necessity to collect data.



Projector



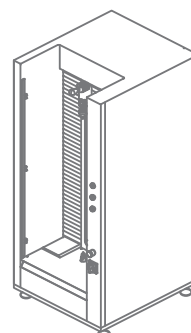
Micrometer



Roundness gage

### VICIVISION MEASUREMENT SYSTEM

- Measurement from 30 to 60 seconds.
- Eliminates human error.
- Automatic cycle at the touch of a button.
- Automatic data collection.



## To increase your production

MTL is an optical measuring machine for turned and ground parts capable of taking measurements on a piece profile in a matter of seconds on the shop floor. This means:



Control on shop floor

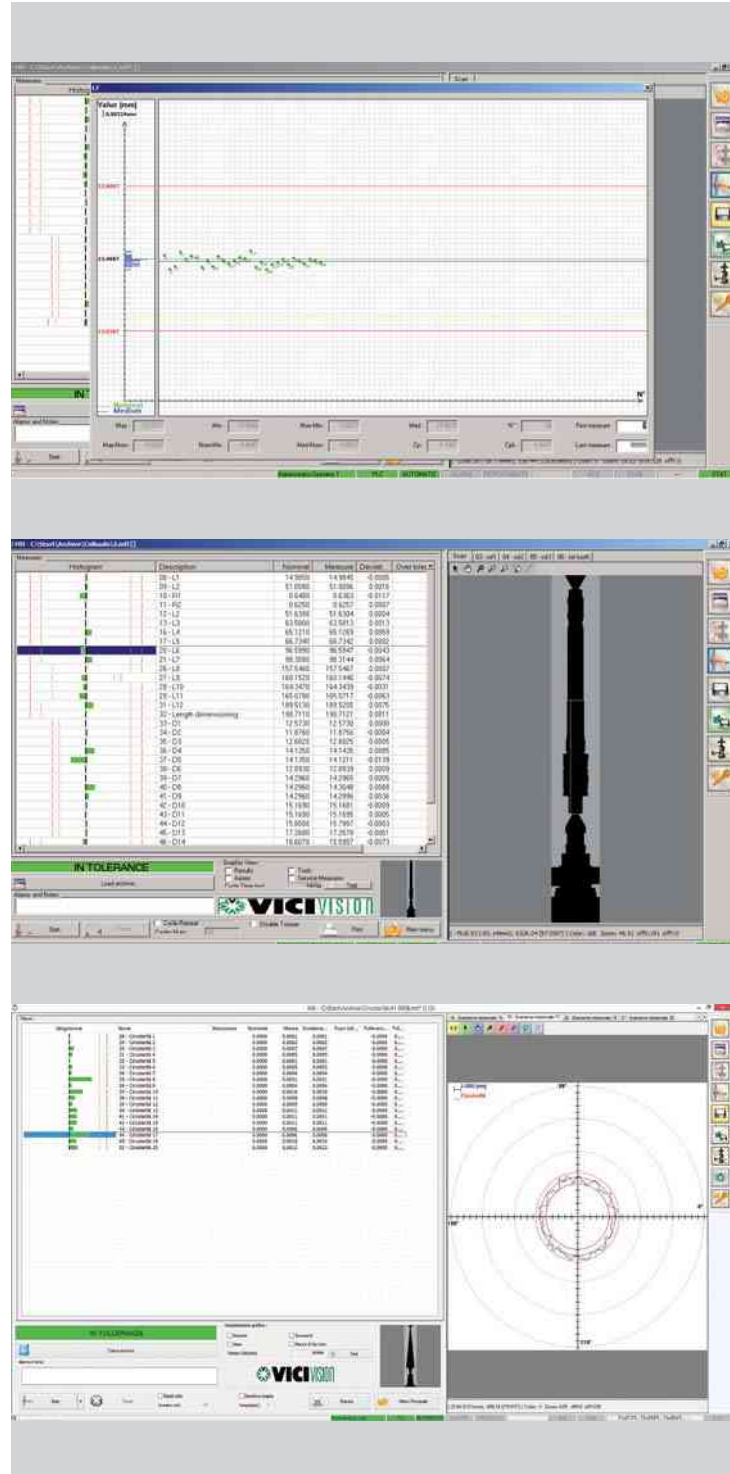
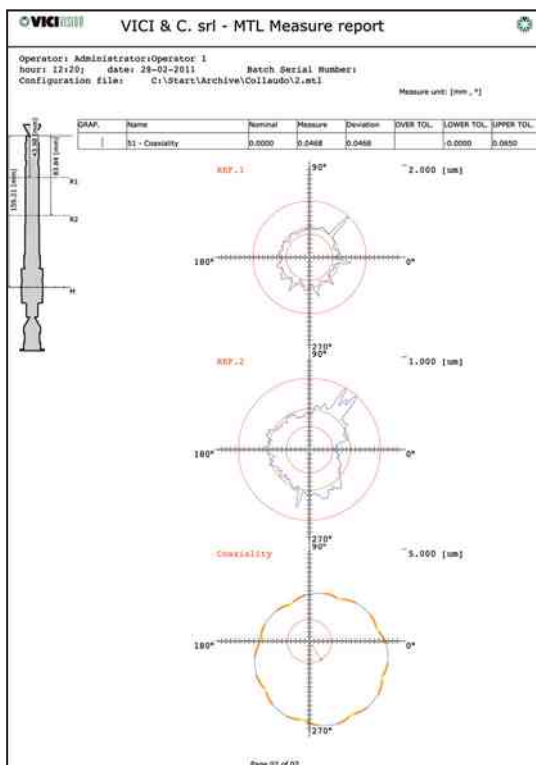
- Time savings of up to one hour for each batch, measuring pieces beside the lathe.
- Reduction in machine downtime thanks to immediate control without leaving workstation.
- Reduction in waste, implementing the preventive actions indicated by the measurement trend graphs.
- Interface between MTL and workstation to automatically correct tool parameters.

## Statistics

- Result of measurements on histograms for immediate consultation.
- Report of measured pieces can be run directly on the machine by the operator.
- Measurement trend graphs with a simple click.

Analyzing the measurement trend allows the operator to intervene on tool offsets ahead of time.

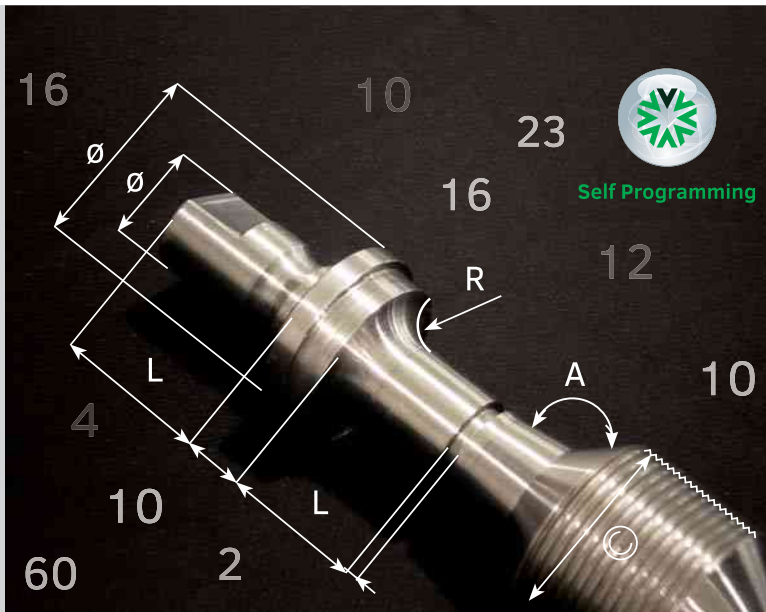
Tolerance center checks ensure less waste.



## Greater efficiency on smaller batches



The first pieces of every batch must be measured to set the machining center. Performing this operation with MTL beside your machine saves up to 30'/1 hour and increases efficiency even in smaller batches. Companies working with small batches need fast programming, this is why MTL offers:



### SELF-PROGRAMMING:

Acquires the image of the piece, the software measures all the recognized geometric elements and elaborates an immediate report of each single piece.

### STEP BY STEP ASSISTED PROGRAMMING:

The software suggests what to measure for rapid programming on small batches.

### ADVANCED MANUAL PROGRAMMING

The operator can choose 100% of the references to create a program and obtain results useful to correcting the machining center.



Move from one piece to the next by simply clicking the barcode.

Need a dimension? The operator can take it directly from the image.

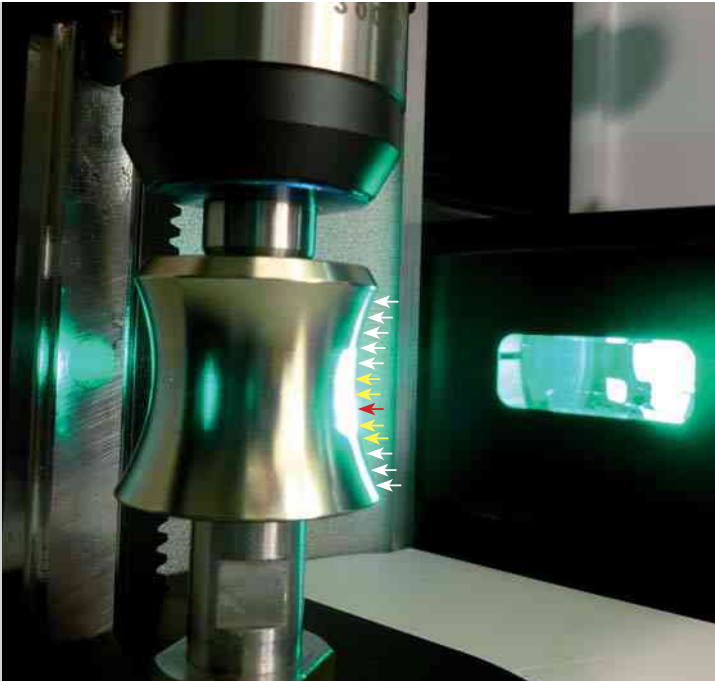


A full range of accessories is available to block various pieces.

## Specific process solutions



Production processes often require dedicated solutions which must be simple and reliable for “in-line” inspection. That’s why Vici Vision improves the optical measuring systems of the entire MTL range with specific tools and applicatons.

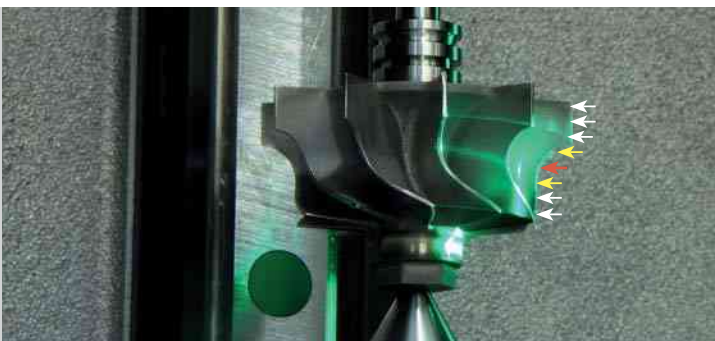


### DXF COMPARISON

Compares the piece profile with the DXF cad file.

Detects:

- > maximum profile distance
- > maximum distance from tolerance
- > GD&T



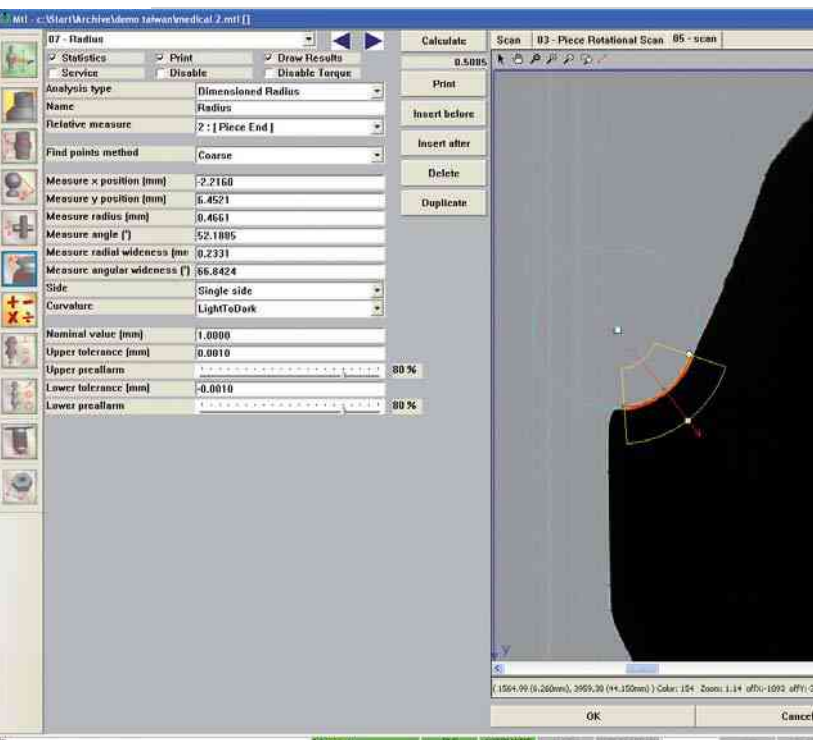
### TURBINE MEASUREMENTS

Dynamically determines the position of the known diameter on the turbine wheel.  
DXF profile comparison.



### POSSIBILITY TO INTEGRATE WITH ROBOTICS

Automatic loading and unloading controls 100% of production without any extra costs.



## DIRECT DISPLAY OF REAL IMAGE OF THE PART

- Allows the operator to check that the measurement has not been contaminated by burrs or by dirt.

## OFF-LINE PROGRAMMING

Create measurement programs from the comfort of your desk while the machine is used by operators.

- Program on the real image of a part or start from DXF and choose the blocking systems from the database.
- By saving the programs on the server, multiple MTL units can be programmed.
- Load images from the archives, re-inspecting previously measured parts without actually having part, useful in the case of prototyping, safety components or disputes from clients regarding delivered parts.
- It can be used for reverse engineering, manually detecting the profile dimensions.



## TELE SERVICE

Remote support from a Vici Vision technician for diagnosis, updates, and assistance with programming complex elements.

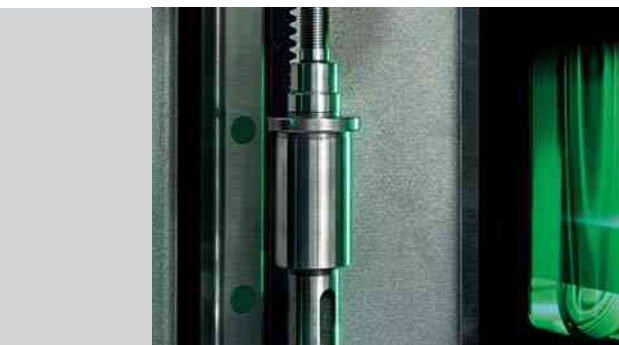
MODELS	MTL X5	MTL 300 Evo	MTL 500Evo/Ergon (60) MTL 850 Ergon (60) MTL 1250 Ergon (60)	MTL 500 Evo/ Ergon (120) MTL 850 Ergon (120) MTL 1250 Ergon (120)	MTL 500 Ergon S MTL 850 Ergon S MTL 1250 Ergon S	MTL 500 X-Stream MTL 850 X-Stream MTL 1250 X-Stream
<b>Measuring field</b> Ø L	16 mm (0.63") 100 mm (3.94")	40 mm (1.57") 270mm (10.63")	60 mm (2.36") 500/850/1250 mm (19.68"/33.46"/49.21")	120 mm (4.72") 500/850/1250 mm (19.68"/33.46"/49.21")	120 mm (4.72") 500/850/1250 mm (19.68"/33.46"/49.21")	170 mm (6.69") 500/850/1250 mm (19.68"/33.46"/49.21")
<b>Max. loadable sizes</b> Ø L	90 mm (3.54") 270 mm (10.63")	90 mm (3.54") 295 mm (11.61")	180 mm (7.08") 500/870/1270 mm (19.68"/34.25"/50") (18 Kg MTL 500 Evo) 30 Kg	180 mm (7.08") 500/870/1270 mm (19.68"/34.25"/50") (18 Kg MTL 500 Evo) 30 Kg	180 mm (7.08") 500/870/1270 mm (19.68"/34.25"/50") (18 Kg MTL 500 Evo) 30 Kg	250 mm (9.84") 500/870/1270 mm (19.68"/34.25"/50") (30/60/60 Kg)
<b>Weight</b>	3 Kg	6 Kg				
<b>Resolution</b> Ø L Rotation	0,1µm 0,1µm 0,001°	0,1µm 0,1µm 0,001°	0,1µm 0,1µm 0,001°	0,1µm 0,1µm 0,001°	0,1µm 0,1µm 0,001°	0,1µm 0,1µm 0,001°
<b>Accuracy</b> Ø L	2+D[(mm)/100]]µm 5+L[(mm)/100]]µm	2+D[(mm)/100]]µm 5+L[(mm)/100]]µm	2+D[(mm)/100]]µm 5+L[(mm)/100]]µm	2,5+D[(mm)/100]]µm 5+L[(mm)/100]]µm	2+D[(mm)/100]]µm 5+L[(mm)/100]]µm	2+D[(mm)/100]]µm 5+L[(mm)/100]]µm
<b>Repeatability</b> Ø L	0,4µm 3µm	0,4µm 3µm	0,4µm 3µm	0,6µm 3µm	0,4µm 3µm	0,4µm 3µm
<b>Power supply</b> Voltage Frequency Nominal power	230V 50/60 Hz 1,73 A	230V 50/60 Hz 1,73 A	230V 50/60 Hz 1,73 A	230V 50/60 Hz 1,73 A	230V 50/60 Hz 1,73 A	230V 50/60 Hz 1,73 A



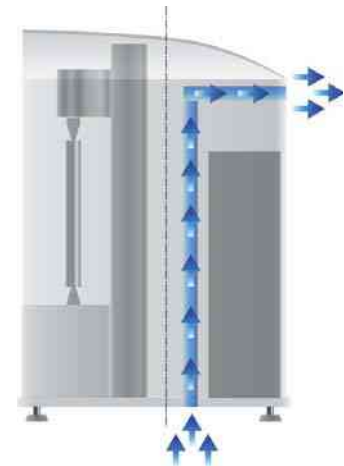
- Tailstocks slides on prismatic guides with ball runner blocks guaranteeing precision today and tomorrow. Rack and pinion regulation system for easy use.



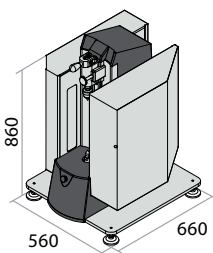
- On board step-master guarantees the correct functioning of the machine.



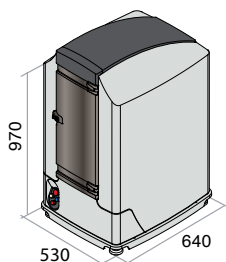
- Retractable sensors protect optics from part damage during loading and unloading.



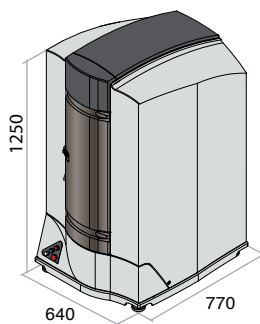
- Unique "Air flow" cooling system for use even in the toughest environments.



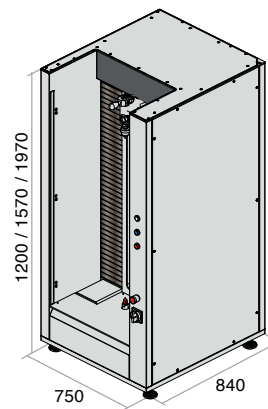
**MTL X5**



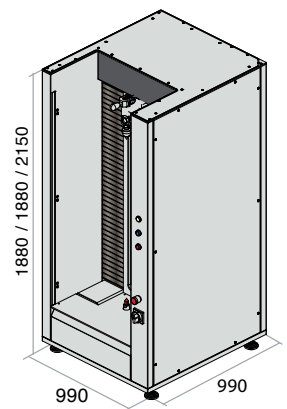
**MTL 300 Evo**



**MTL 500 Evo**



**MTL 500 Ergon/Ergon S**  
**MTL 850 Ergon/Ergon S**  
**MTL 1250 Ergon/Ergon S**



**MTL 500 X-Stream**  
**MTL 850 X-Stream**  
**MTL 1250 X-Stream**



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Info products

