



technical data system integration

Online TOC Analyzer TOCADERO ONE

Version 1.20

TECHNOLOGY

- 1.200°C high temperature digestion
- without catalyst
- NDIR detector for CO₂
- ECD Detector for TNb (optional: CLD/NDUV Detector for TNb)
- Methods TC, NPOC, TNb (TOCdiff, POC/VOC, TIC)
- DIN EN 1484 (TOC) according to DIN EN 12260 (TNb)
- 2 sample streams
- Measuring cycle: < 1 minute



ANALYTICAL PROPERTIES

Measuring ranges:	0-10 ppm, 0-100 ppm, 0-1.000 ppm, 0-10.000 ppm optional: 0-100.000 ppm
Detection limit:	0,1 ppm
Measuring time	
T100:	< 3 min (NPOC)
TC/TOC:	<1 min
Reproducibility:	± 2 % of MBE
Salt tolerance:	up to 200 g/l (20% NaCl)
Particle mobility:	< 2 mm optional: homogenizer and sample preparation

PHYSICAL DIMENSIONS

Weight:	< 55 kg
Dimensions:	800 H x 600 B x 320 T mm
Voltage Supply:	AC100 - 230 V ± 10 V
Carrier Gas:	CO ₂ free air
Wasted head:	approx. 300 watt

MAINTENANCE

- Predictive Maintenance / self-monitoring
- Monthly effort max. 30 min
- Reactor lifetime > 3 years
- Self-cleaning and backflush function
- Safe and gastight separation between analysis and electronic part

COMMUNICATION

Display:	7" touch panel
Analog output:	0/4 - 20 mA
Digital output:	OPC UA, Ethernet, Profinet, Modbus
Data transfer:	Bluetooth, WLAN, GSM
Relay:	4 programmable NAMUR Standard
Languages:	English, German, Japanese, Chinese, Korean

ENVIRONMENTAL CONDITIONS

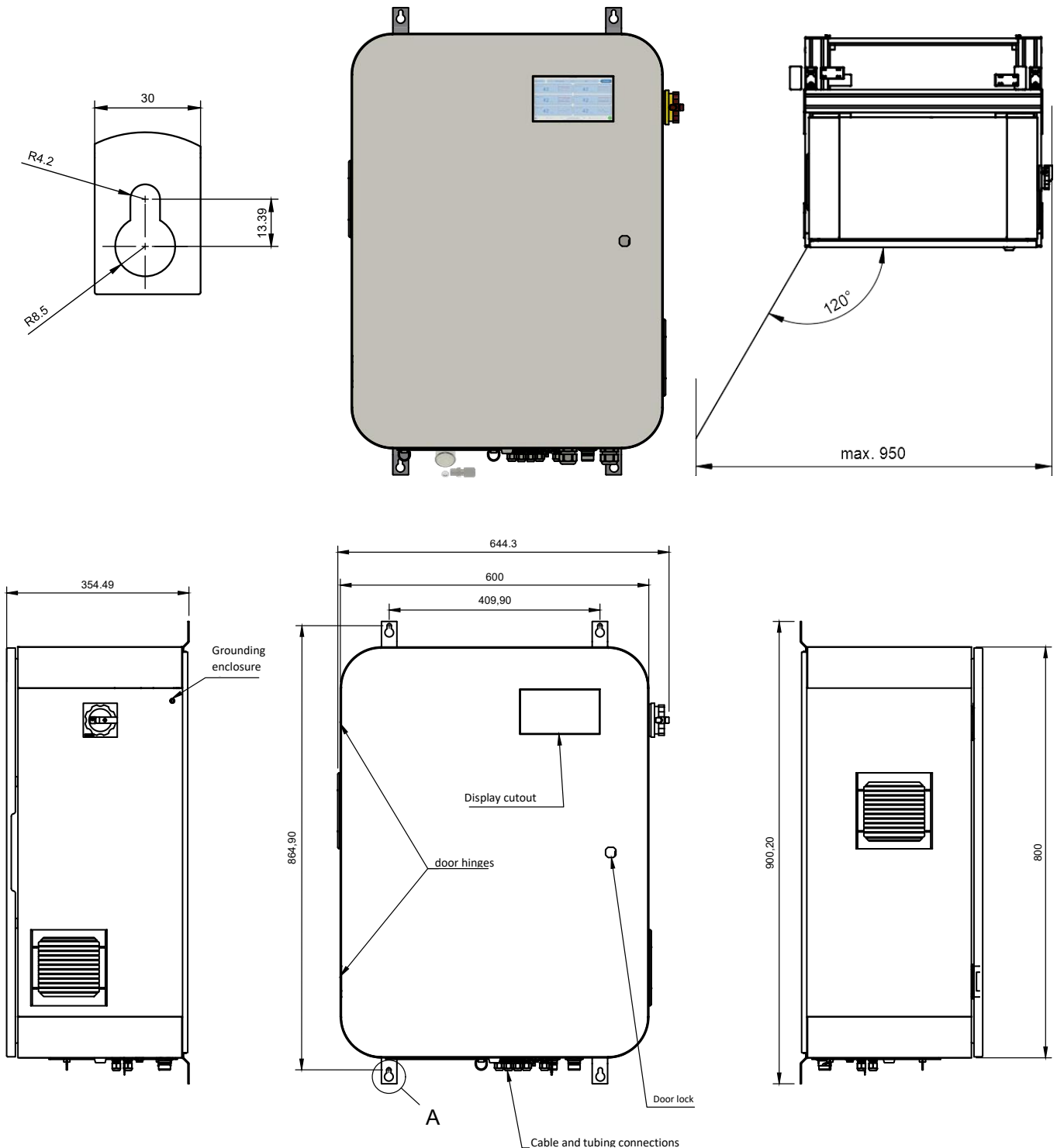
Temperature:	2 - 45 °C
Ambient humidity:	< 85% (not condensed)
Housing:	IP 54, IP 65 (optional: NEMA4X)
EX p- protection class:	Zone 1 / 2, T3 and T4, ATEX & IECEx (available from 2022)

OPTIONS

- Com-Box for safe communication
- Air-Box for CO₂ free carrier gas
- Mounting frame for safe fixing
- Sampling system

Main Unit

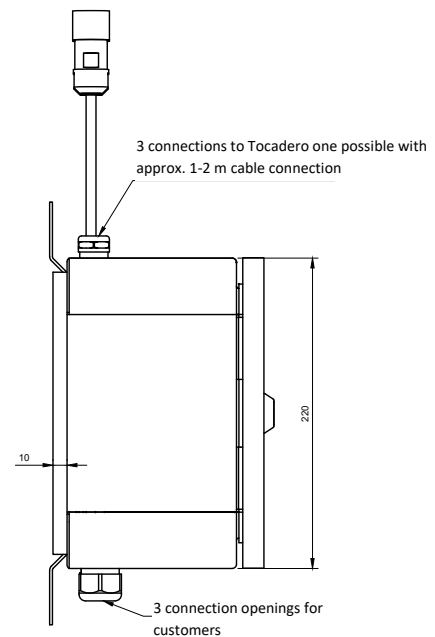
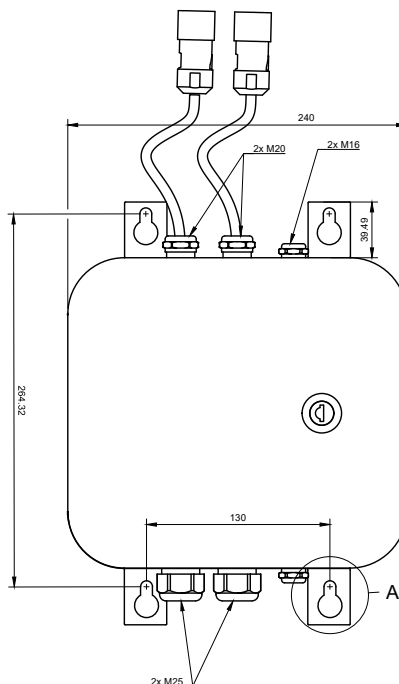
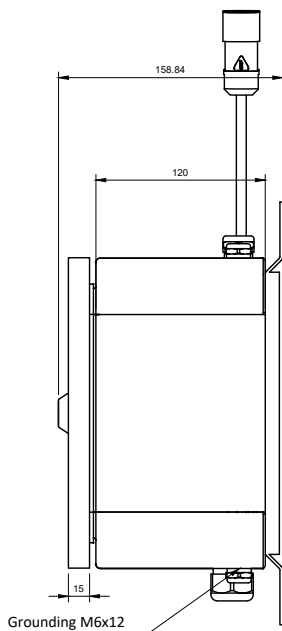
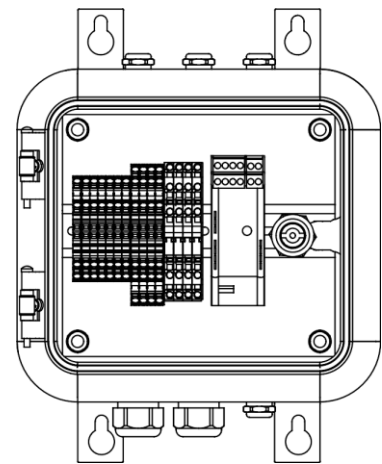
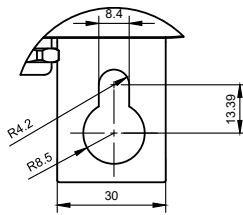
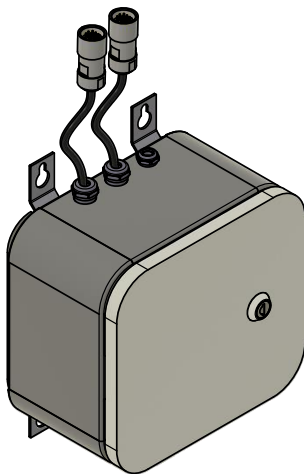
- Material: sheet of steel, powder coated, IP 54
- Connection: Interface digital with RJ 45 socket
All electrical connections and sample supply / discharge from below
- Mounting: M6x12 screws on mounting frame, or M8 screws for mounting on the wall (choose length of screw depending on wall condition)



Com - Box

Optional connection box for digital and analog communication. Connection of the main unit via two cables with a length of 1.5m. External outputs can be connected directly inside the Com-Box.

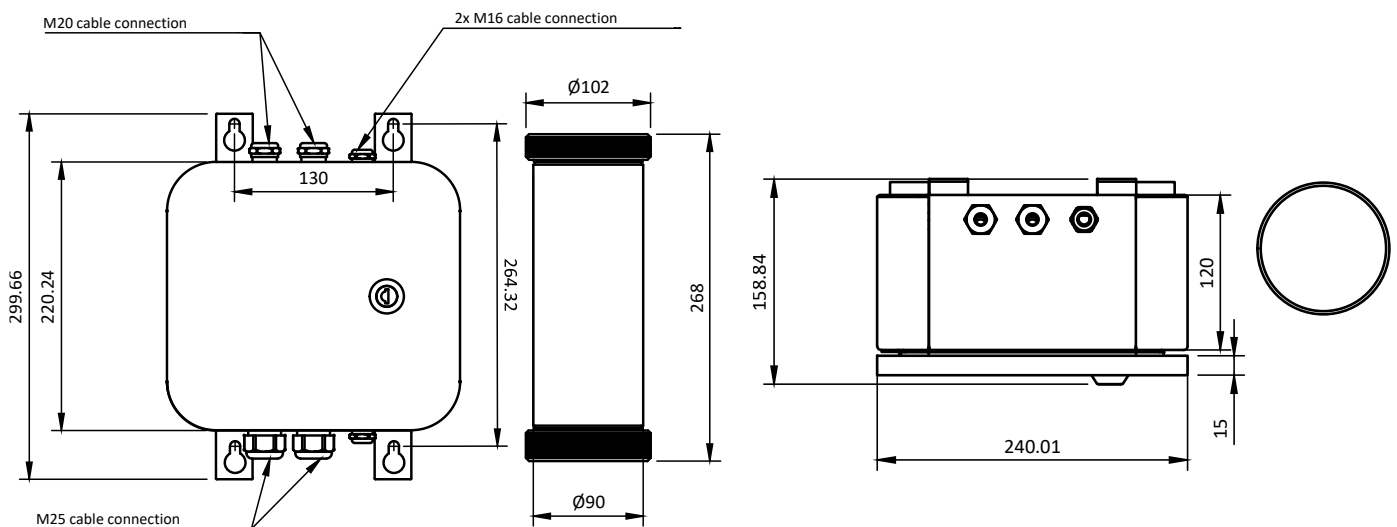
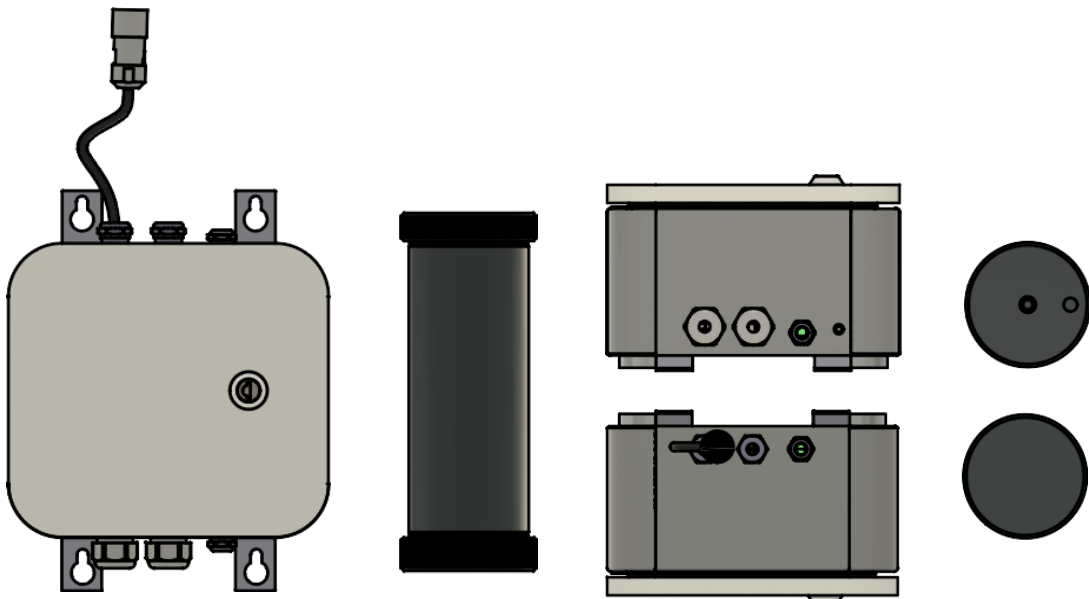
- Housing: sheet of steel, powder coated, IP 54
- Internal connection: 2 cables with plug, length: 150cm, optional longer cables
- External connection: feed through 2 x M16, cross section of eagles max. 2,5 mm²
- Outputs: 6 x 0/4 to 20 mA, galvanically isolated
4 potential free change-over contacts 24 V 0,5 A loadable according to NAMUR
- Inputs: 6 digital
0 to 3 V DC low, 22 to 26 V DC high
- Mounting: M8x20 screws on mounting frame or M8 screws for mounting on the wall (choose length of screw according to wall condition)



Air - Box

Optional preparation for CO₂ free carrier gas.

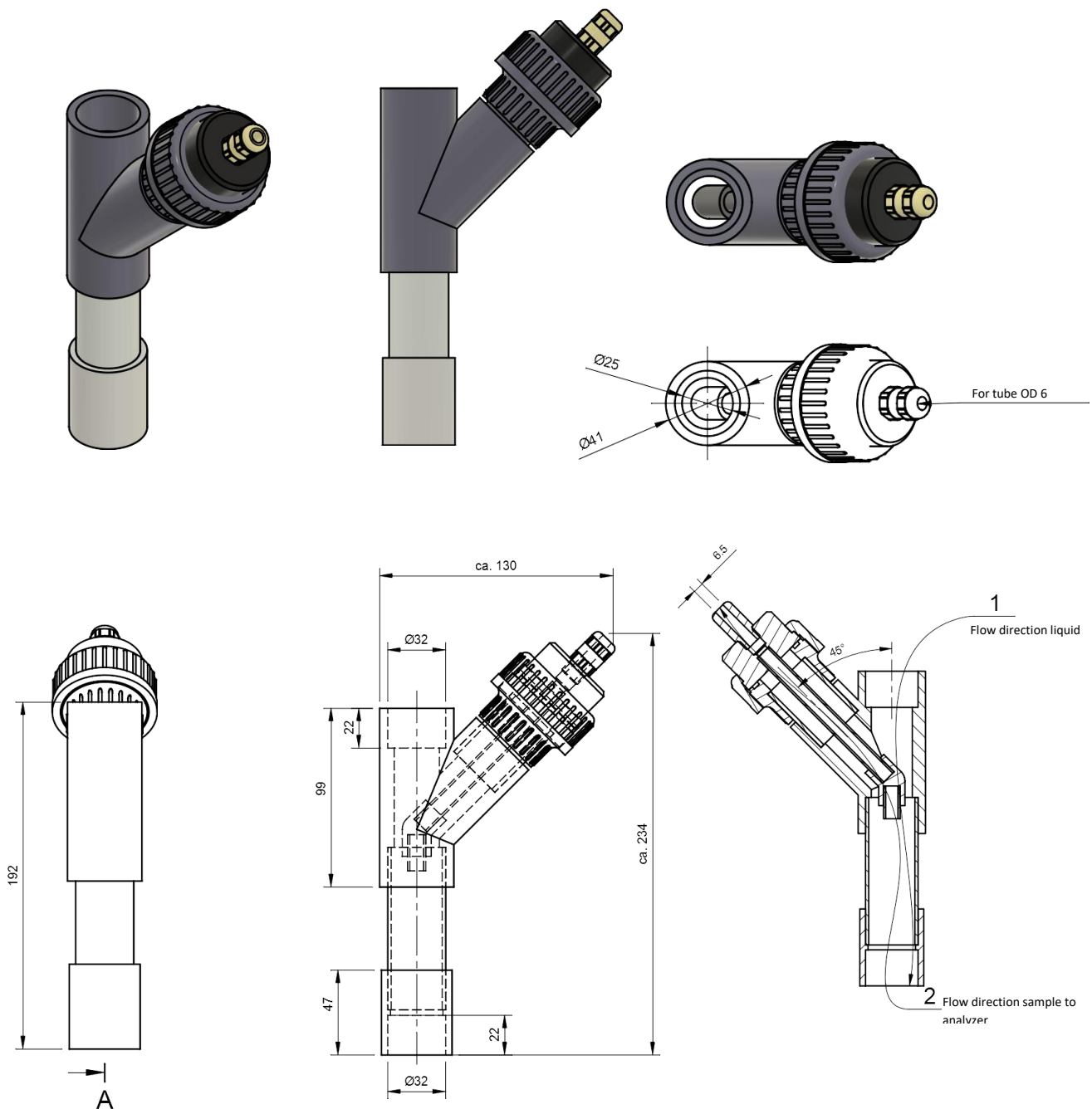
- Housing: sheet of steel, powder coated, IP 54
- Connection: 1 cable with plug
- Mounting: M8x20 screws on mounting frame or M8 screws for mounting on the wall (choose length of screw according to wall condition)
- Absorber tube: 1 l soda lime, integrated activated carbon filter and fine filter, max 2 bar
Flow through inlet and outlet from below.



Sampling system

Optional smart sampling system in counterflow for low particle sampling.

Material:	PVC
Bypass connection:	32 mm glued socket
Sampling connection:	4 mm AD PTFE tube
Pressure at the system:	Max. 20 bar
Installation position:	Free selectable, system must always be filled with sample
Flow rate:	Min. 200 l/h, max. 3.000 l/h



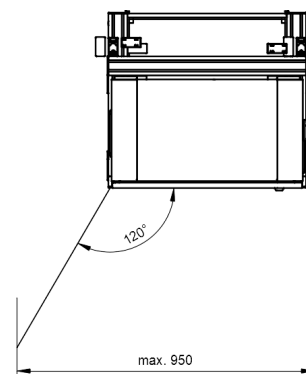
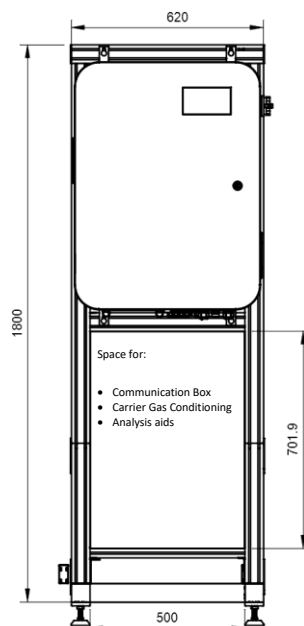
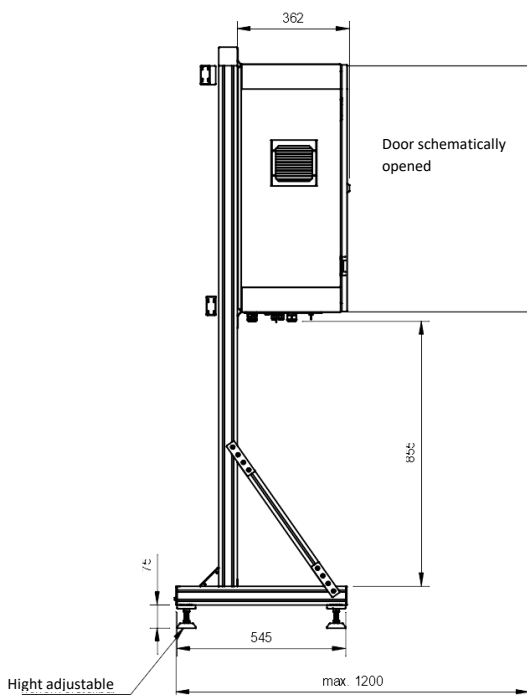
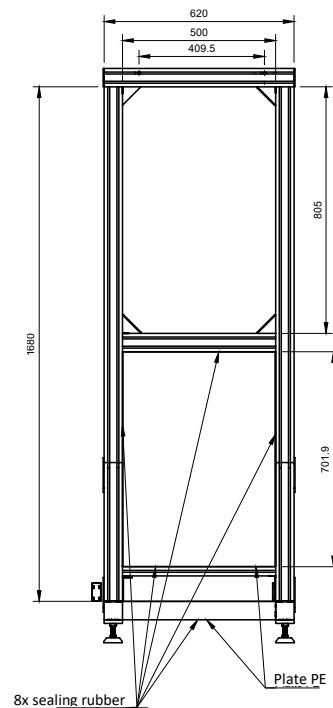
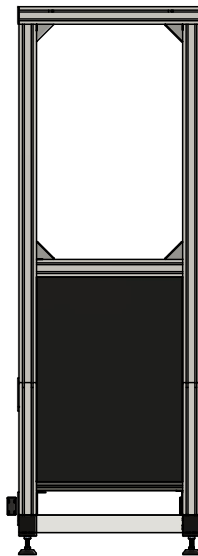
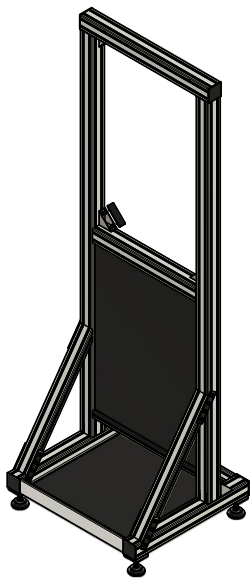
Mounting rack

Optional mounting rack for secure mounting at the installation site. A small rack for only mounting the optional Com- and Air-Box is also available.

Material: Aluminum extrusion, PE

Weight: 30 Kg

- Details:
- frame for easy assembly and installation of Tocadero ONE and accessories, if no load-bearing wall is available.
 - Provides space for Tocadero ONE, communication box, carrier gas preparation, PES and acid canister.
 - Integrated drain tray.
 - Tilt resistant.



Maintenance

Visual inspection of the system is performed at monthly or quarterly intervals. The replacement of consumables is necessary only in case of need, at least after 1 year. The control and maintenance can be done by the user.

Maintenance activity for clean water applications	monthly	¼ - yearly	yearly
Visual inspection + cockpit/ check device status	X	X	X
Check flow rate / sampling	X	X	X
Observe one measuring cycle	X	X	X
Fill up acid canister 2% HCl, (1%...3%)		X	X
Clean sample storage vessel			X
Clean sample tubing			X
Clean sample collector			X
Measured value Check with standard solution (single measurement)		X	X
Pump tube of Feed pump Check		X	X
Replace pump tube of Feed pump			X
Acid trap Filling Check, replace after 1 year at the latest		X	X
Aerosol filter Filling Check, replace after 1 year at the latest		X	X
Air box Check, replace soda lime if necessary, max. 1 year		X	X
Calibration with standard			X
Replace reactor filling			X
Effort in hours	0:15	0:30	3:30

Consumables

The following materials are required for operation:

Carrier gas:	CO ₂ free air, dust free, dry, CO ₂ < 1ppm, flow 20 - 40 l/h.
Acidification:	hydrochloric acid 1% (depending on application), maximum 1 l per month
Reference solution:	Potassium hydrogen phthalate (C ₈ H ₅ KO ₄) for the preparation and regular check of TOC with a reference solution. Potassium ammonium sulfate + potassium nitrate ((NH ₄) ₂ SO ₄ + KNO ₃), for the preparation and regular check of the total nitrogen content with a reference solution.
Carrier gas preparation:	soda lime and activated carbon for carrier gas preparation (Only in combination with Air-Box)

Sample conditions

Sample temperature:	up to 70°C as standard, optional available for condensate- or process monitoring >70°C.
Sample pressure:	pressure less; < 0.3 bar
Sample taking:	within 1-2 m
Particle size:	≤ 2mm, optional homogenizer

Remote support with augmented reality

Horiba Tocadero relies on state-of-the-art smart glass technologies to support service technicians or users in case of problems and maintenance. In this way, valuable tips can be given live to solve the problem. Additional information such as manuals or service notes can be provided. As a strong partner, Horiba Tocadero relies on AMA Expert-Eye for software support.



Service

Horiba Tocadero provides maintenance and service support through its worldwide network of service technicians. These are organized by the country specific subsidiaries or the head office in Berlin. In Germany, we are available at 7 locations with our qualified personnel.

