



Cryobox-Bio

Product Technical Note

Galileo Technologies has developed Cryobox-Bio in order to make biomethane the fuel for renewable electricity generation, sustainable mobility or home heating. It is a solution that can inject liquefied renewable natural gas (Bio-GNL) of high commercial quality into city supply networks.

Cryobox-Bio consists of an innovatively designed set for biogas upgrading and liquefaction processes and it was modularly conceived to scale the system to the size of the raw gas flow to be processed. For each capacity leap, our standardized plug-and-play configurations make expansions both easier and more cost-effective.

Whether it comes from biodigestors, landfills or wastewater treatment systems, this set can upgrade and liquefy raw gas from any biogas source.

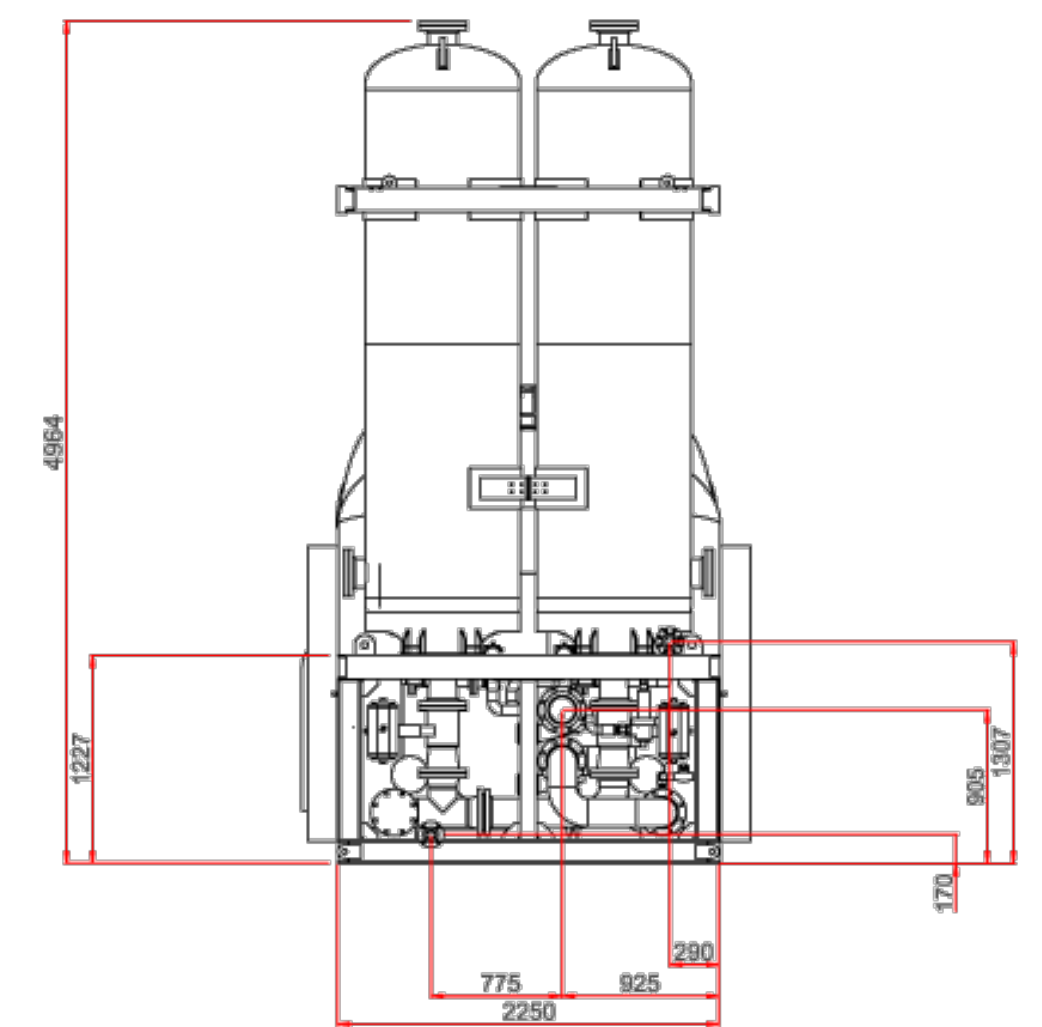
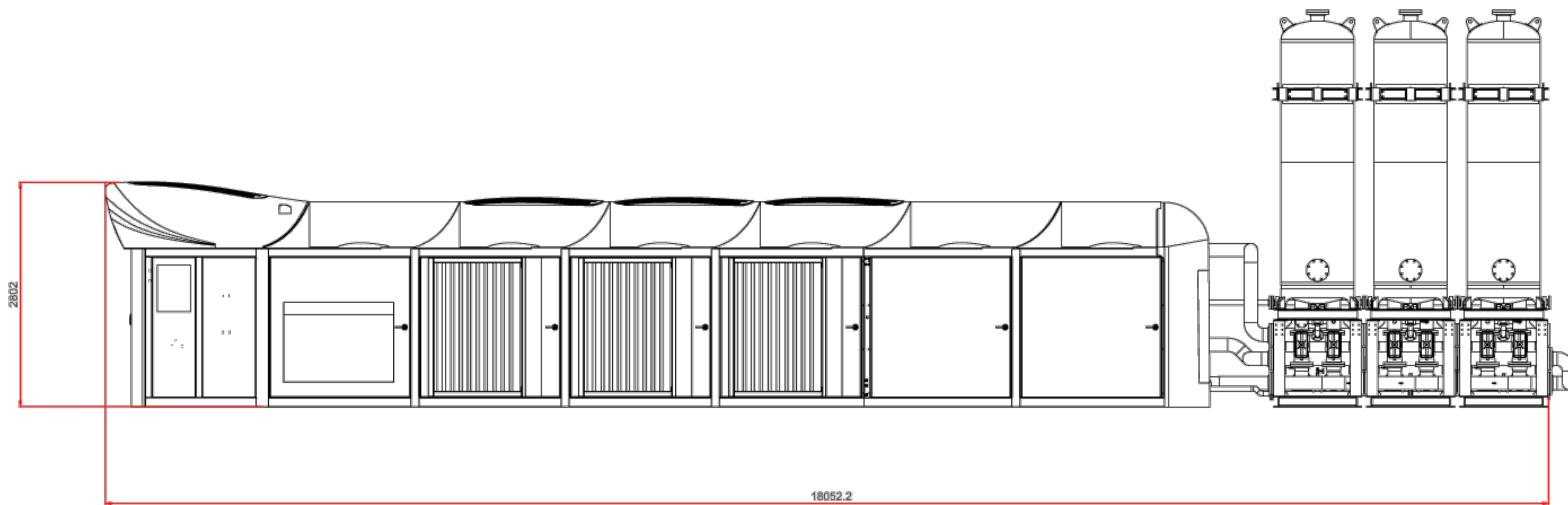
The solution consists of three stages:

- 1. Upgrading:** Both our activated carbon adsorption system and the three-stage membrane filtering method (CSM Unit) guarantees the removal of components such as hydro sulfuric acid (H_2S), siloxanes and volatile organic compounds (VOCs), as well as biomethane separation (CH_4) from the carbon dioxide (CO_2) and water (H_2O) to provide a renewable natural gas flow with a methane recovery rate higher than 99%.
- 2. Polishing:** In order to liquefy the biogas flow, our polishing unit (ZPTS) extracts all of the carbon dioxide (CO_2) and water (H_2O) that were not removed in the previous upgrading stage. The process takes place in the equipment's molecular sieve within the three adsorption towers. Once both the retained CO_2 and H_2O saturate the adsorption capacity of one tower, this tower ceases to operate in order to automatically regenerate while the polishing process continues in the following tower.
- 3. Liquefaction:** Our proprietary Cryobox liquefaction technology incorporates compression and cooling stages that bring biomethane to supercritical conditions to then reduce its pressure and finally achieve its liquefaction. This thermally integrated process reduces the energy consumption and produces up to 15 tons of liquefied biomethane (Bio-GNL) daily.

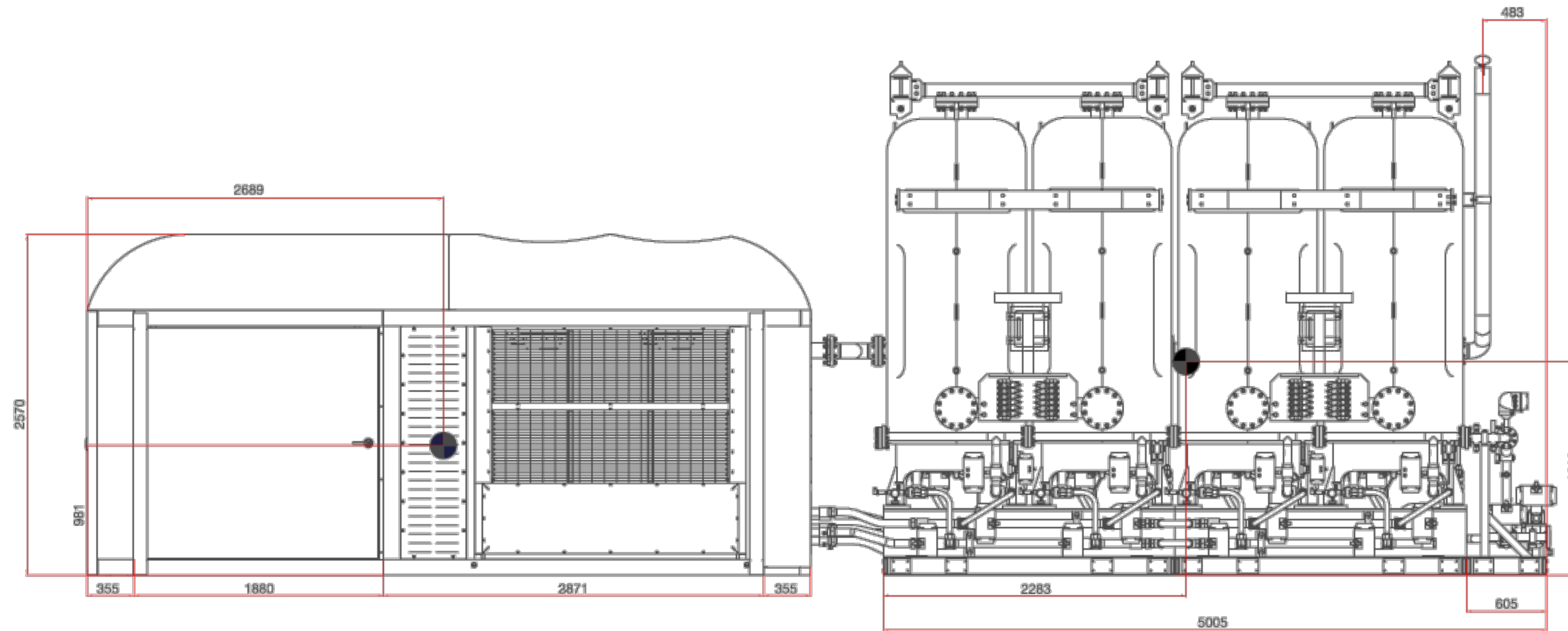
Galileo Global Link – Scada System

As with any of the other Galileo Technologies products, this equipment is also monitored by our Galileo Global Link – Scada System. This system processes the information of all our equipment around the world and it is remotely operated by specialized technicians that provide support 24/7. The system contemplates hundreds of monitored devices and can be applied to the entire range of products.

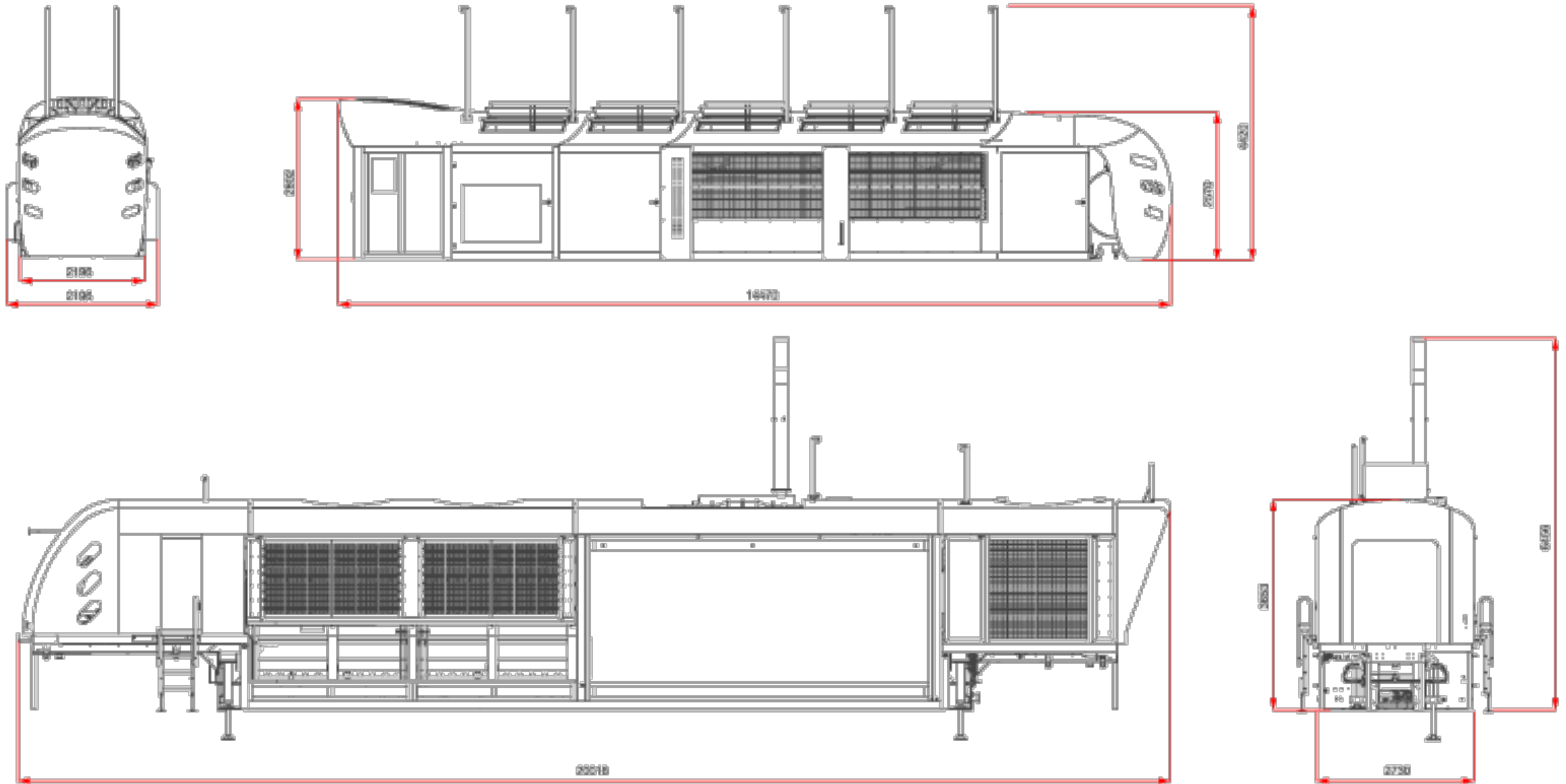
CSM unit



ZPTS



Cryobox 750





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