

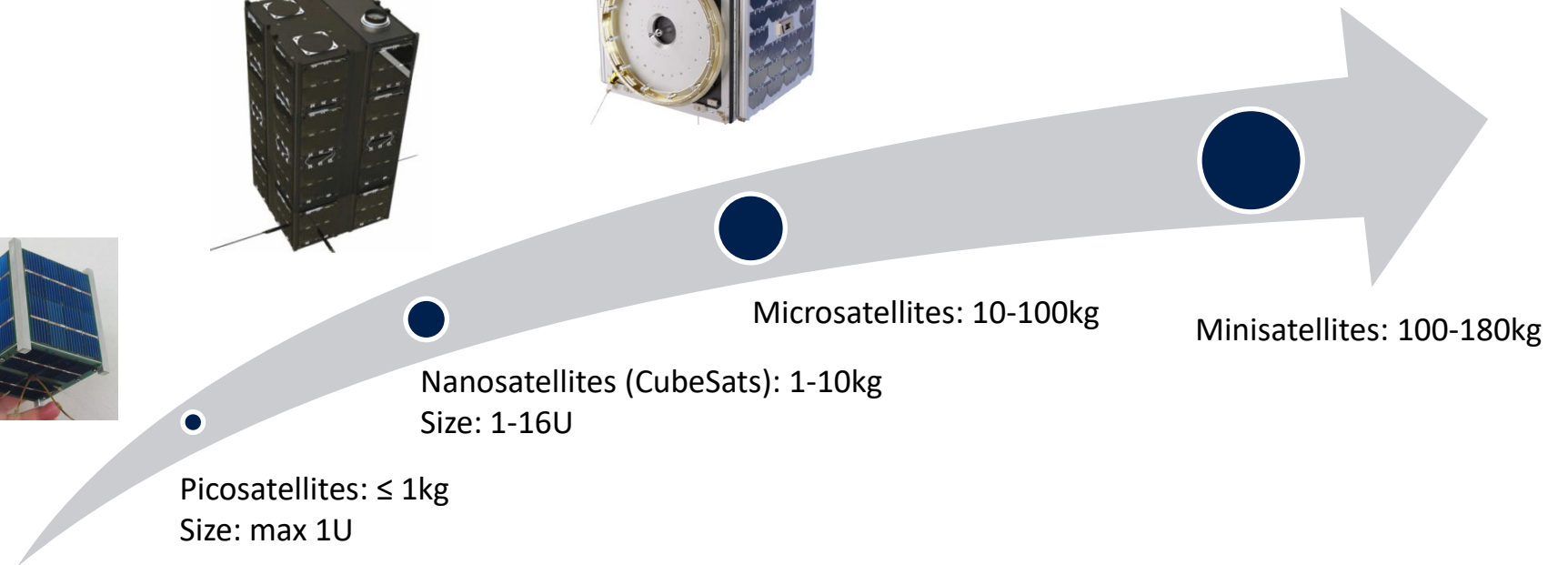
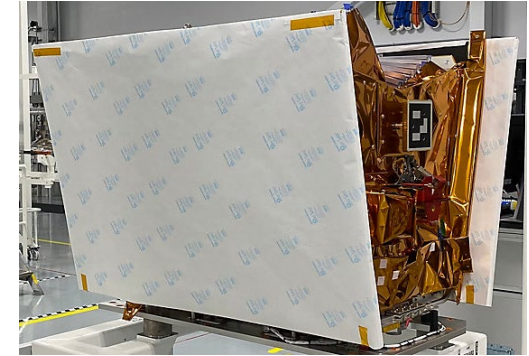
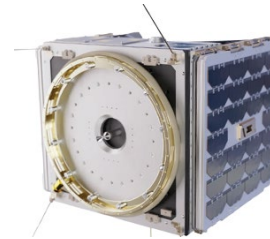


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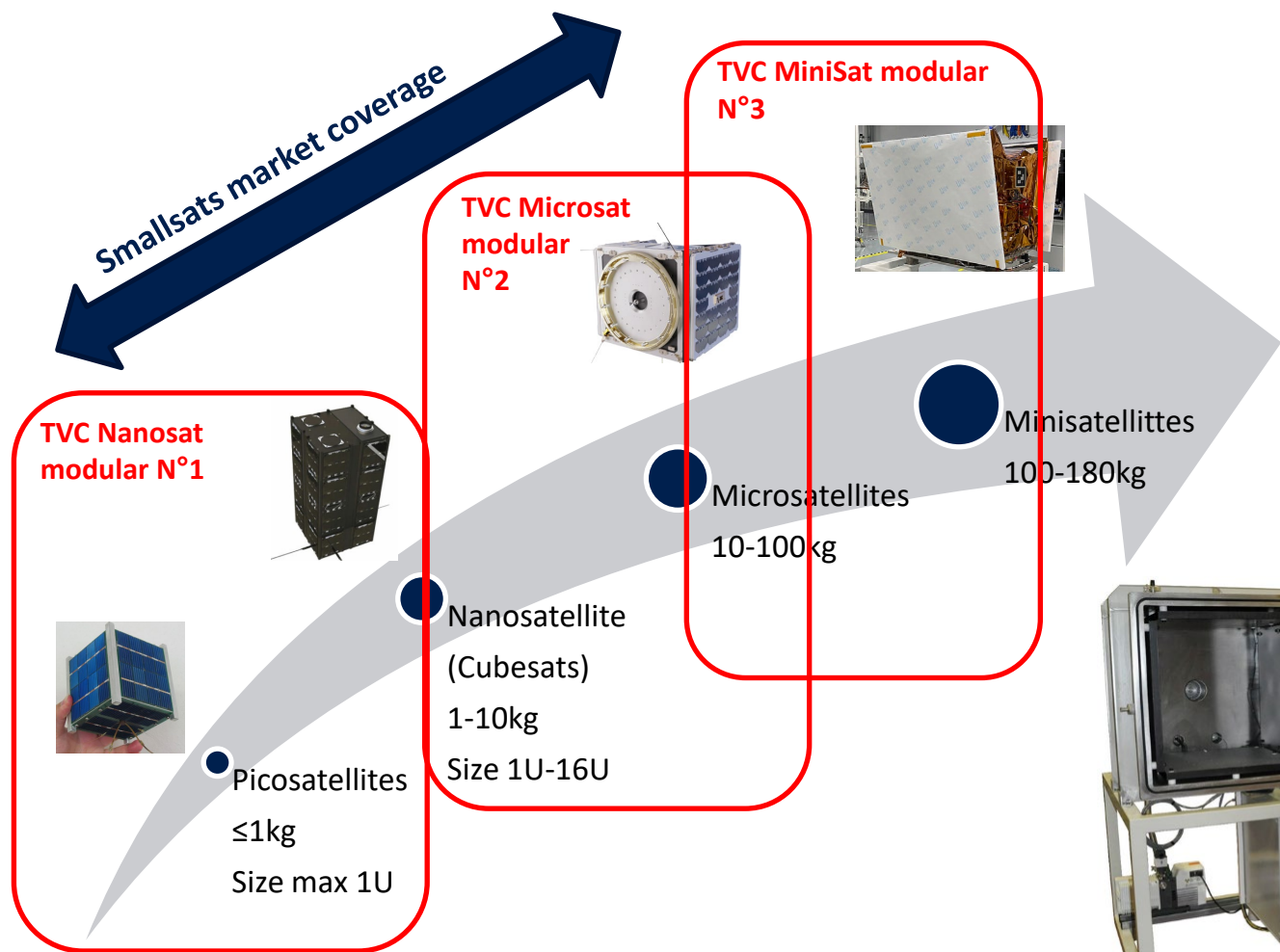
Thermal Vacuum Cycling for SmallSats — Modular TVCs & BKO's by weisstechnik

The growth of the SmallSat market requires ready-to-use TVC configuration

- **Large-scale production of small satellites must be tested before liftoff**
 - **Test axis n°1: Contamination control by thermal degassing process (Bake-out)**
(Secondary vacuum level and temperature > +120°C)
 - **Test axis n°2: Thermal cycling under vacuum to replicate space conditions (TVC)**
(Secondary vacuum level and temperature between -180°C / +180°C)
- **Test equipment needs to be :**
 - **Compact**
 - **Flexible**
 - **Cost effective**



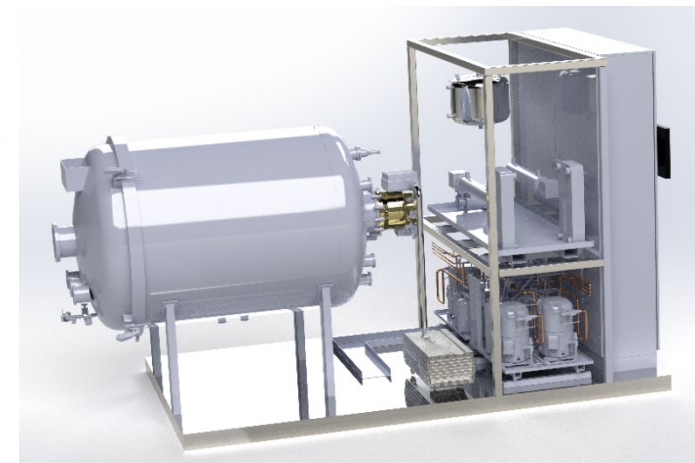
We are offering TVC & BKO modular configurations that match entire smallsat market



- **TVC Nanosat modular baseline n°1**
 - TVC Cubic shape (420L)
- **TVC Microsat modular baseline n°2**
 - TVC cylindrical shape diameter 1200 mm (≈1500L)
- **TVC Minisat modular baseline n°3**
 - TVC cylindrical shape diameter 1600mm (≈ 2800L)



TVC Nanosat configuration

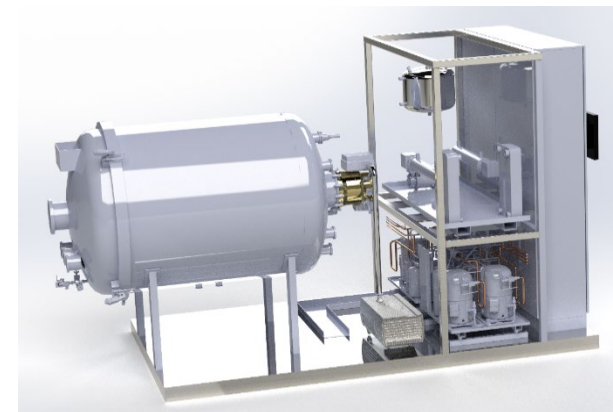


TVC Microsat & Minisat configurations

Type	Volume*	Vessel Dimensions (mm)*	Thermal shroud diameter (mm)	Thermal plate dimensions(mm)*	Overall Footprint*	Temperature	Temperature range*	Cooling/Heating rate °C/min*	Vacuum	Ultimate Vacuum level (mbar)	Pumping time to 10-6 mbar
Modular 1 - Nanosat	420L	750 x 750	600	600 x 600	<1000 (W) x <2000 (D) x <1900 (H)	-180 °C / +160°C (LN2 cooling) -70°C / +160°C (Mechanical cooling)	1.5			1.10-6	3 hours
Modular 2 - Microsat	1500L	1200 x 1200	1000	1200 x 600	1800 (W) x 3500 (D) x 2200 (H)						
Modular 3 - Minisat	2800L	1600 x 1200	1400	1200 x 1000	2600 (W) x 3500 (D) x 2200 (H)						



TVC Nanosat configuration



TVC Microsat & Minisat configurations

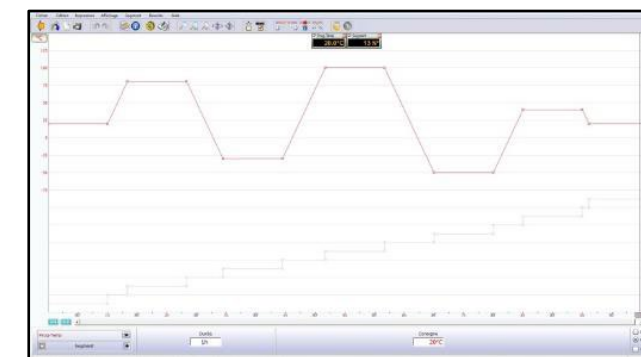
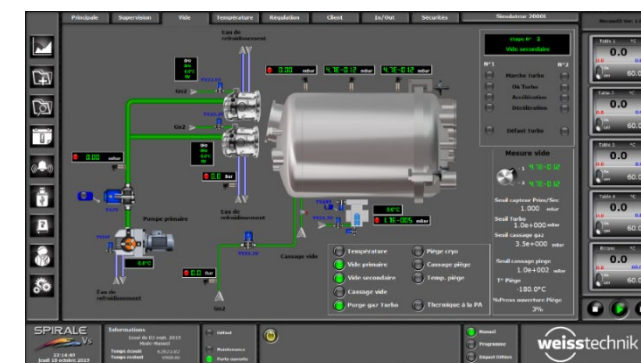
***Improved performance and modular configurations on request**

Test management – Create your own perfect testing process with SPIRALE VS.

Equipment control & supervision through Spirale Vs



SPIRALE
Vs



Process management/documentation/networking

- Powerful supervisor with user-friendly interface
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- Local and/or remote control and monitoring
- Documenting, visualising and managing process data



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