

APPLICATION NOTE

VacuDAP model 160 00 18 and 160 00 13 used with RTI Chamber Adapter

This application note describes the requirements and specifications for use of the VAcuDAP models 160 00 18 and 160 00 13 with the RTI Chamber Adapter.



Specifications

VacuDAP model 160 00 18 or 160 00 13 with RTI Chamber Adapter

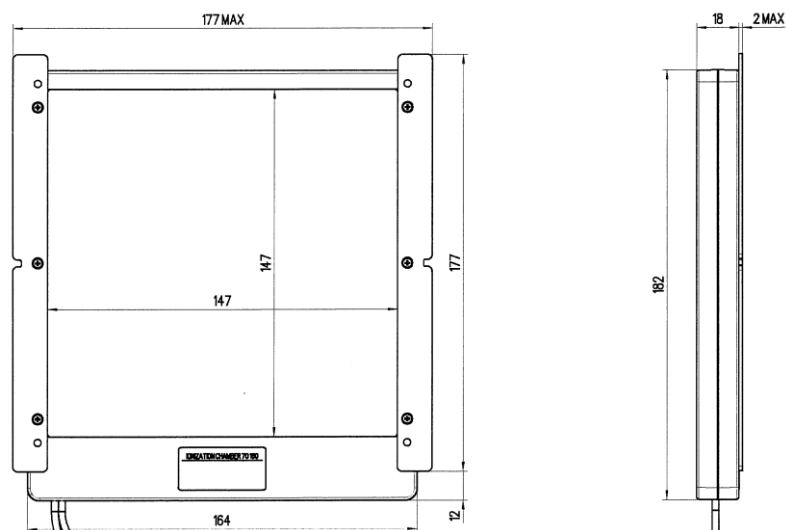
Range:	6 mGycm ² /s - 1800 mGycm ² /s 0.6 mGycm ² - 1 kGycm ²
Exp. Uncertainty:	±6 % at reference conditions RQR5 ±10 % RQR2 to RQR10
Valid for:	Exp time >100 ms RTI Chamber Adapter v.1.1.

Note 1: The RTI Chamber Adapter must be of version 1.1 or higher.

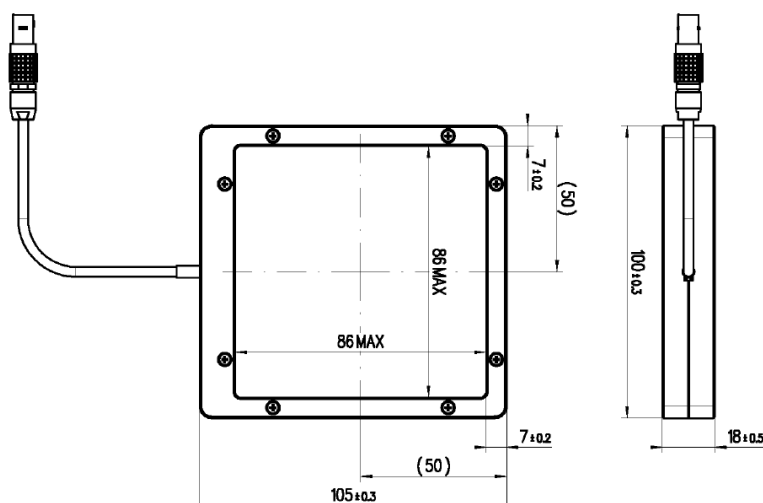
Note 2: If the rate exceeds the specified range, the RTI Chamber Adapter will lock, and the Piranha will give a high signal message. This cannot be reset from Ocean. The Chamber Adapter will have to be powered off and on again to be un-locked.

Mechanical Data

VacuDAP 160 00 18



VacuDAP 160 00 13



Technical Data

VacuDAP 160 00 18

All technical data are valid for the specified ambient conditions according to IEC 60580.

Response	
without additional absorber	800 pC / $\mu\text{Gy}\cdot\text{m}^2$
with additional absorber (0.5 mm Al)	920 pC / $\mu\text{Gy}\cdot\text{m}^2$
Leakage current	≤ 0.1 pA
Response versus radiation quality	- 6% / + 0% (50 kV ... 150 kV, acc. IEC 60580)
Quality equivalent filtration (70 kV)	0.2 mm Al
Transparency	> 70%
Active Area (max.)	(1 .. 200) cm^2
Chamber voltage	300 V
Distance of the electrodes	6 mm
Stabilization time	5 min
Rated range of use	
Tube voltage	(40 ... 150) kV
Atmospheric pressure	(80.0 ... 106.0) kPa
Temperature	(+10 ... +40) °C
Air humidity	(10 ... 80) % rel. humidity (max. 20 g/m^3)
Weight	
ionization chamber	250 g

ATTENTION! The ionization chamber must frame the radiation field at all times!
The maximum dose area product rate must not be exceeded.

VacuDAP 160 00 13

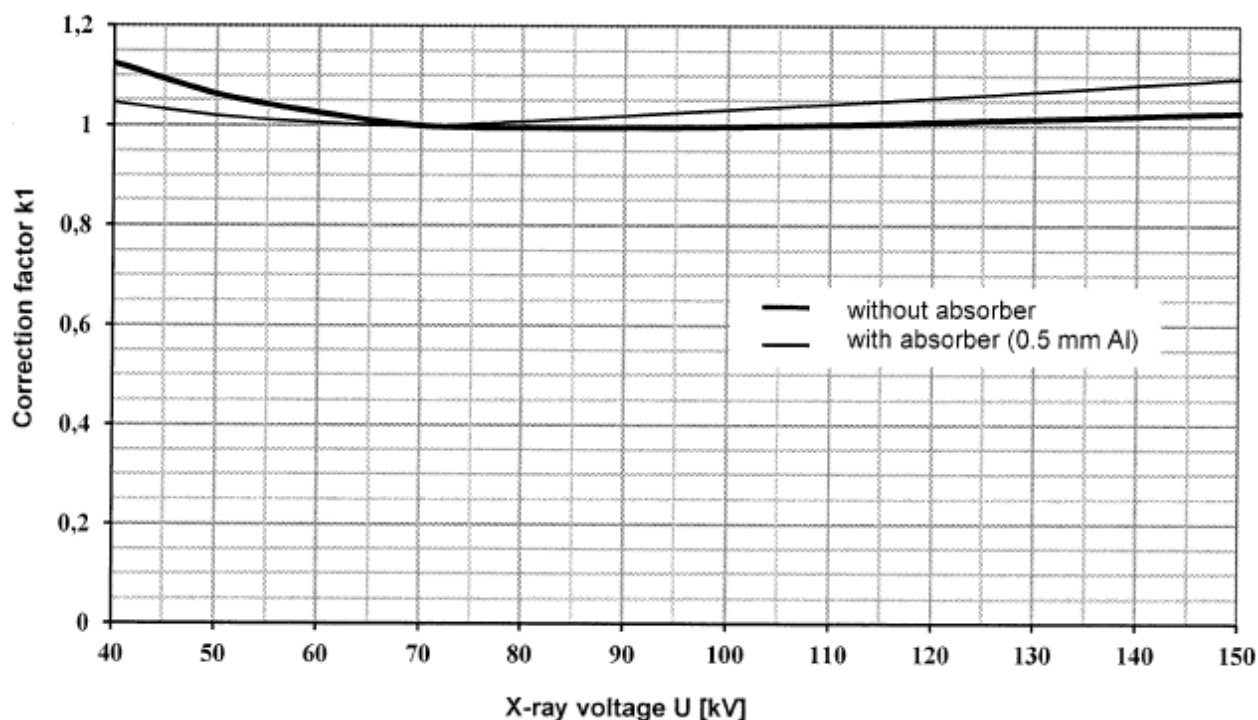
All technical data are valid for the specified ambient conditions according to IEC 60580.

Response	
without additional absorber	900 pC / $\mu\text{Gy}\cdot\text{m}^2$
with additional absorber (0.5 mm Al)	1050 pC / $\mu\text{Gy}\cdot\text{m}^2$
Leakage current	≤ 0.1 pA
Response versus radiation quality	- 6% / + 0% (50 kV ... 150 kV, acc. IEC 60580)
Quality equivalent filtration (70 kV)	0.2 mm Al
Transparency	> 70%
Active Area (max.)	(1 .. 64) cm^2
Chamber voltage	300 V
Distance of the electrodes	6 mm
Stabilization time	5 min
Rated range of use	
Tube voltage	(40 ... 150) kV
Atmospheric pressure	(80.0 ... 106.0) kPa
Temperature	(+10 ... +40) °C
Air humidity	(10 ... 80) % rel. humidity (max. 20 g/m^3)
Weight ionization chamber	100 g

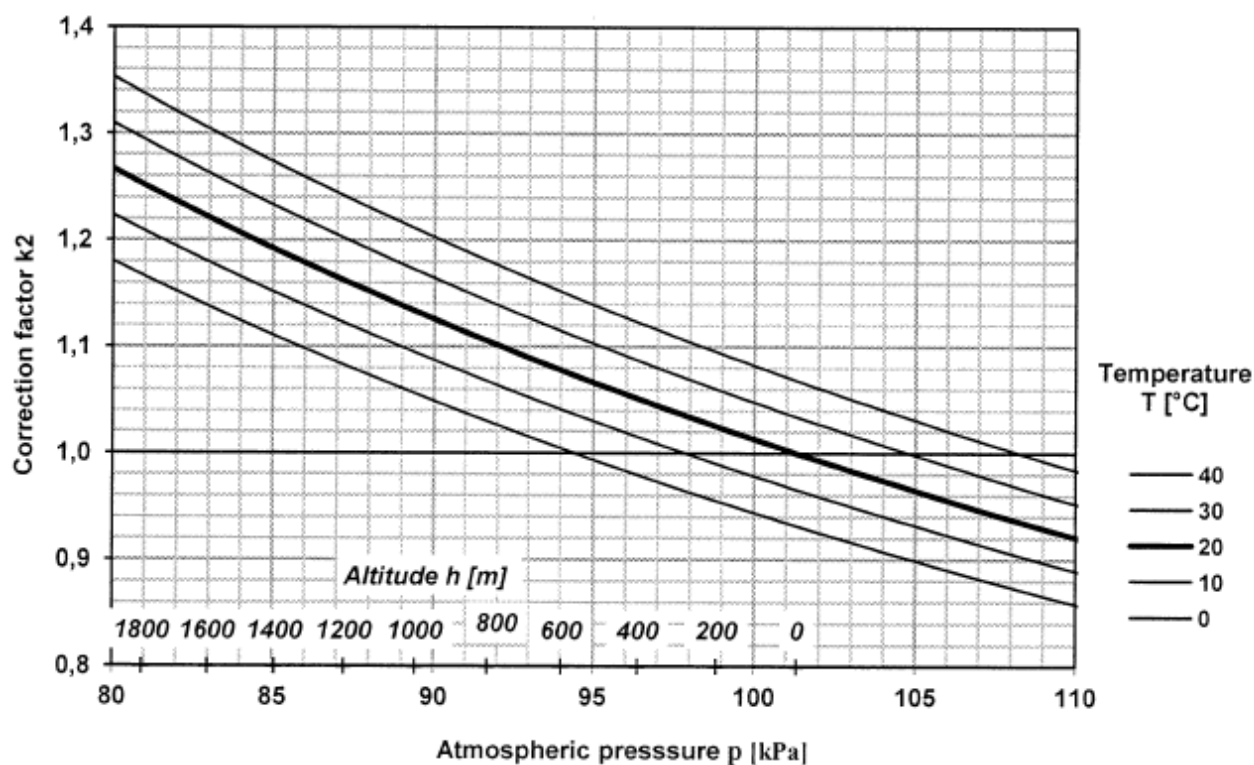
ATTENTION! The ionization chamber must frame the radiation field at all times!

Response Correction VacuDAP 160 00 18 and 160 00 13

The response of the ionization chamber is affected by the radiation quality and the air density. The response of the ionization chamber at different values of the X-ray voltage relative to the response at 70 kV is shown in Graph 1. The dependence on the air pressure or respectively the altitude is shown in Graph 2.



Graph 1: Response correction versus radiation quality.



Graph 2: Response correction versus atmospheric pressure.