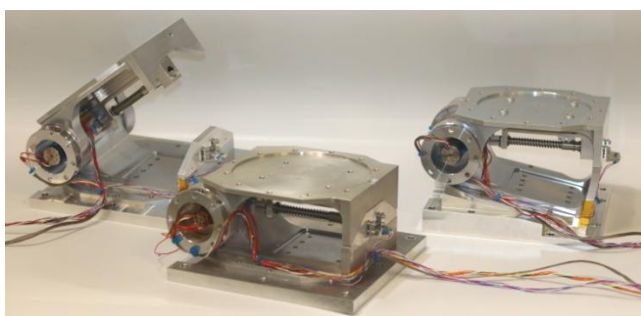
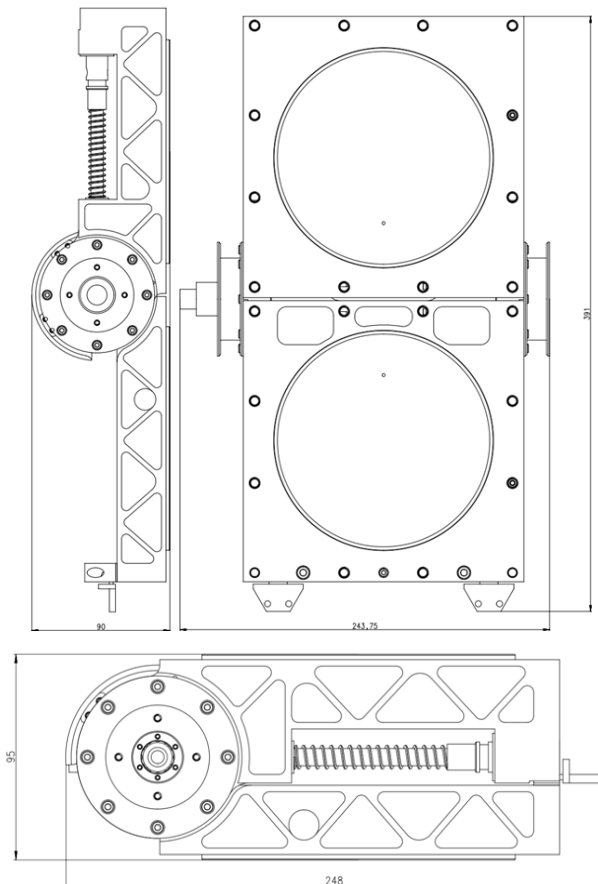


RUAG ABDM

Articulated Booms Deployable Mechanism

RUAG's ABDM is a part of the ESA Project development ABDS and the EU Project LEA. As the self motorized,ITAR-free hinge is able to deploy structures like antenna booms with ultra high stiffness and precision, it latches in deployed configuration without power consumption

The Articulated Boom Deployment Mechanism development started in 2016 together with HPS Munich as an ESA ARTES project. As the connector between two booms or other stowed systems the hinge supports very high stiffness requirements as well as a controlled and defined deployment. In deployed configuration the hinge latches without shock at an adjustable deployment angle between 0° and 200°. Once latched, the hinge is extremely stiff to stay in line with the demanding pointing requirements of large structures. As a full European development the RUAG ABDM is completely ITAR-free.



Performance ABDM		
Description	Ultra stiff single-axial deployment mechanism	
Envelope deployed	245 x 250 x 95 mm ³	
Deployment/Travel angle	0° to 200°	
Temp.	Non operating	[-200°C ; +160°C]
	Operating	[-40°C ; +80°C]
Stiffness at Antenna output – deployed config. (directions defined with respect to CSYS defined on S/C mount plane)	Stiffness Force Z	2.4E+08 N/m
	Stiffness Force X	1.2E+08 N/m
	Stiffness Force Y	1.2E+08 N/m
	Stiffness Moment Z	1.6E+06 Nm/rad
	Stiffness Moment X	1.8E+06 Nm/rad
	Stiffness Moment Y	2.9E+06 Nm/rad
Total Mass [kg]	3.4 kg	
Deployment Torque	+20°C	>40 Nm
	- 40°C*	>27 Nm
	+ 40°C	>40 Nm
	* w/o heating	
Mech. accuracy	6.9E-04 °	
Technology Readiness Level	TRL 6 reached in 2018	
	TRL 8 planned for 2020	
	TRL9 planned for 2021	
Deployed Stiffness XYZ	> 5.0e04 N/m	

