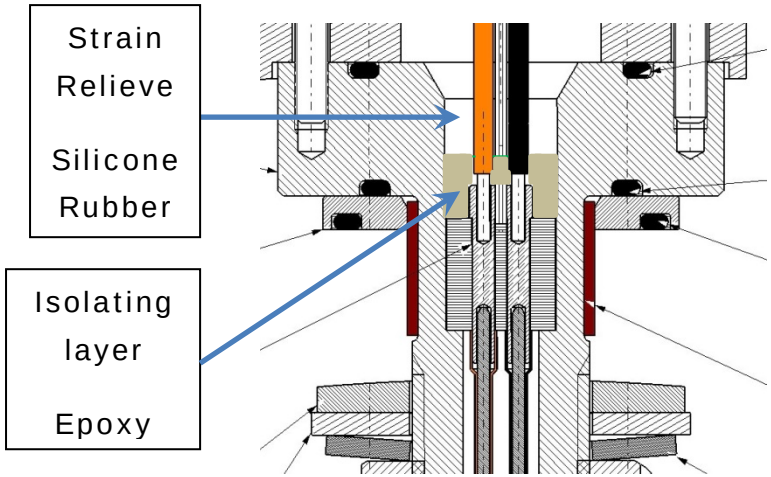
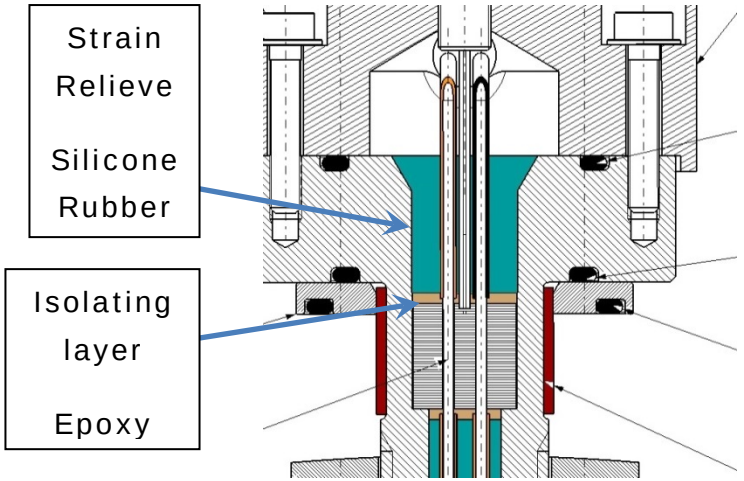
Km3Net- PPM-DU Penetrator DOM/LCM-E Assembly Electrical/Optical signal feed through A.K.-Nikhef MT- Oct. 10 2013 V.1

Penetrator Type 7 Ass'y Dwg.: AA6820 (Massive soldering/crimping pins)	Penetrator Type 9 Ass'y Dwg.: AA6930 (Massive tinned wire AW6715S)
	

Issue/goal: In the past several penetrators are produced and successfully pressure tested at 440-600bar. Unfortunately most of them failed during pressure tests mostly along the copper CABLES, in between the 16 copper wires in particular. We intend to solve this problem by using a (partly) MASSIVE feed-trough (so called STUD Ass'y)

PRO'S	**CON**'S	**PRO**'S	**CON**'S
	Larger GF-feed through diameter needed (diam. 9,9mm)	Lower stresses in parts if using reduced diameter of 7,9 mm	
Flexible copper cable (AW6715) applicable	Higher stresses in parts	Smaller GF-feed trough diameter possible (diam. 7,9mm)	Higher stiffness of copper wire (AW6715**S**)
	More production time consuming		Surface roughness of tinned copper cable sufficient ? TEST !
Stepped pin reduces/eliminates shear stresses in epoxy (EPOTEK 353ND)	Air inclusions possible in soldering joints		Possible creep effects of tin "layer" on copper wire ? => Local grinding
	More attention needed during isolating pins	Nearly identical production time needed w.r.t. copper cables	All shear stresses applied in epoxy (EPOTEK 353ND)
	Thicker epoxy layer needed		
	Less height left for strain relieve		