

Budget, Resources & Planning

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Budget

2.427 MCHF was allocated to this project in 2015.

Some money has already been spent, mainly on preparing the test stand (bld 236).

Job opened with EN/MME to initiate integration studies. Will continue for the collector.....

Spending profile in APT					
≤2018	2019	2020	2021	2022	
118 kCHF	50 kCHF	400 kCHF	1200 kCHF	659 kCHF	actual
130 kCHF	100 kCHF	500 kCHF	1200 kCHF	497 kCHF	updated

Total budget : 2.427 MCHF		
Design, drawings	250 kCHF	>4500 hours
Magnetic system	1000 kCHF	Incl. spare coils
Raw materials & production	750 kCHF	Vacuum chambers, BPM.....
Vacuum	50 kCHF	NEG (coating,strips), acceptance tests
HT platform	100 kCHF	
Cabling	50 kCHF	
Misc.	227 kCHF	

Resources

We would like to build the new cooler in the same way that the ELENA electron cooler was made:

Magnetic system -> industry

Gun, collector, vacuum elements... -> in-house

BI-EA has >35 years experience in designing, building, commissioning and operating electron coolers.

One electro-mechanical technician

One electronics technical engineer

Two applied physicists

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Requested from other sections/groups:

BE/BI/BP: BPM

EN/MME: Design, production drawings

TE/VSC: Specification of vacuum system, NEG coating, acceptance testing

TE/MSC: Specification of magnetic system, magnetic measurements

Tentative Planning

- 2019: Design of new collector. Produce drawings. Start production (main workshop availability?). GT,JC,EN-MME
Specification of the magnetic system. Produce tender documents. Market survey (?). GT,LJ,TE-MSC,CERN-FI
Finish integration study (incl. magnets reshuffle). Ecool & AD teams,EN-MME
Finalise gun study and design. AP,AR,GT,EN-MME
- 2020: Call for tender for the magnetic system. FC(?)
Production of the new collector (ready for autumn). Main workshop
Produce drawings for the electron gun. Start production (?). EN-MME
Design of the vacuum system. Drawings ready for end of year. Ecool team,EN-MME,TE-VSC
Test new collector on ecool test stand. Ecool team
- 2021: Install new collector on AD. Exchange electron gun. Ready for start-up. Ecool team,TE-VSC
Magnets production. Follow-up with TE-MSC
Production of the vacuum system. Chamber coating. Acceptance tests. TE-VSC
- 2022: Continue production and acceptance tests/measurements of magnets and vacuum system. TE-MSC & VSC
Mounting in bld 236 (ecool test stand)
- 2023: First tests of the new cooler.

Installation & commissioning

The new AD electron cooler could be ready for installation during the 2023/2024 shutdown.

Depends on how much can be done in preceding shutdowns (21/22, 22/23):

- Install HT platform & cable pulling
- Reshuffle ring magnets

If not we will have to wait until LS3 for the complete installation of the cooler and the modifications to the AD ring.

Commissioning:

run the new cooler with the present AD cycle i.e. cooling @ 300 MeV/c and 100 Me/c
during dedicated MD time insert the 500 MeV/c plateau and perform the cooler commissioning