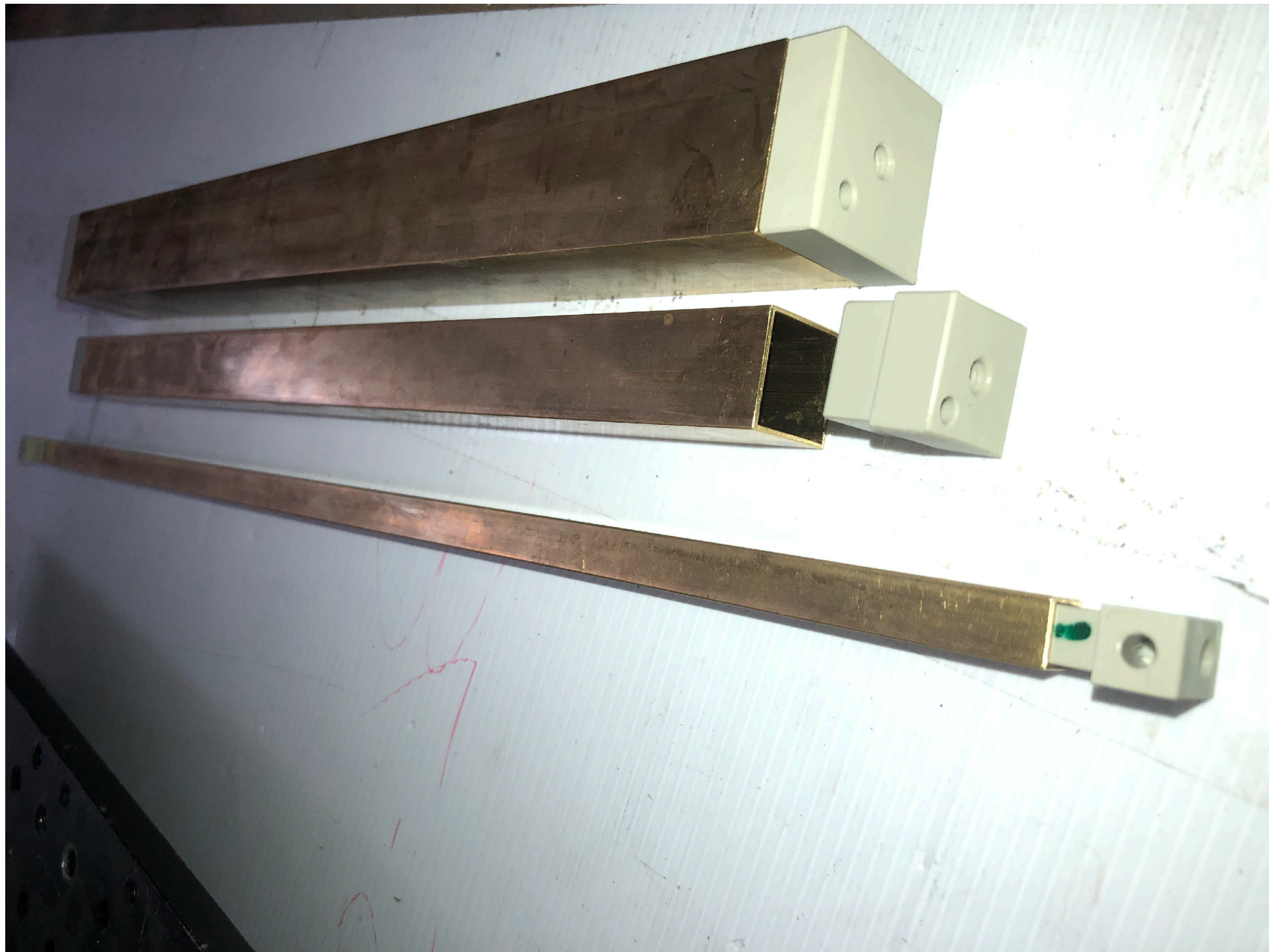


Status of preparation for test beam

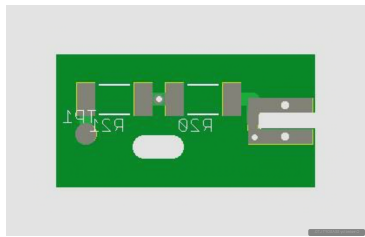
F. Grancagnolo





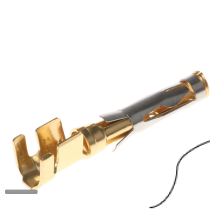
Pin connecting scheme

expected
19/10
assembly
22/10



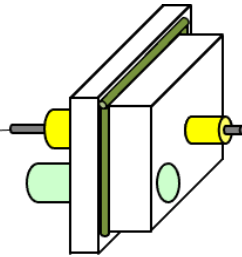
HV distribution board

expected
15/10

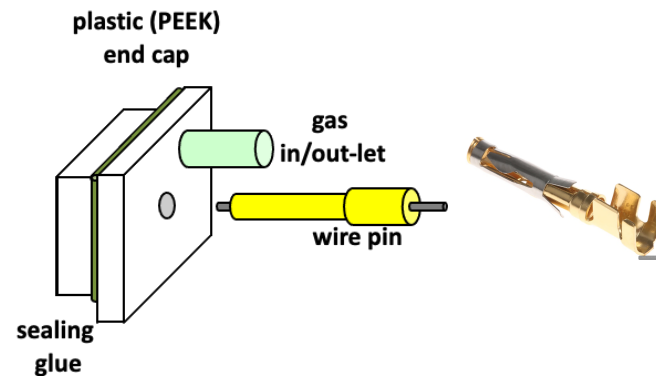


connecting pin

assembly
phase
assembly
15/10

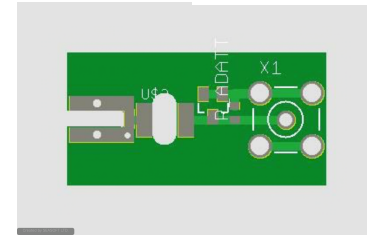


drift tube end cap



drift tube end cap

expected
15/10



connecting pin
HV decoupling board

Drift tubes wiring expected to be completed
22/10

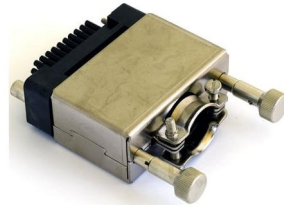
HV chain



SY 1527
Mainframe



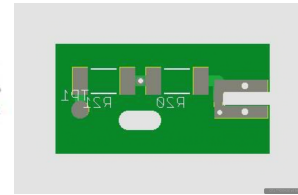
1535P
24ch



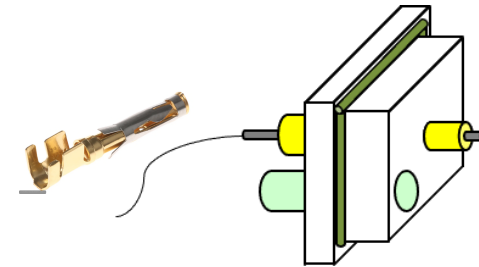
CAEN A996
Radiall 691803004



24 leads
HV cable



HV distribution
board



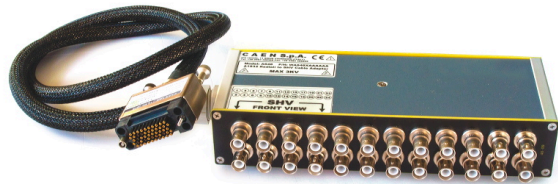
drift tubes
system

expected
15/10

assembly
20/10

These parts need to be made

HV alternative distribution



CAEN A647

24 Channel Multipin Radiall to SHV connector Adapter



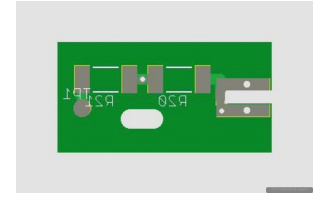
12 HV
(short) cables



patch panel
(12 connections)



12 core HV cable
(to be soldered
At both ends)



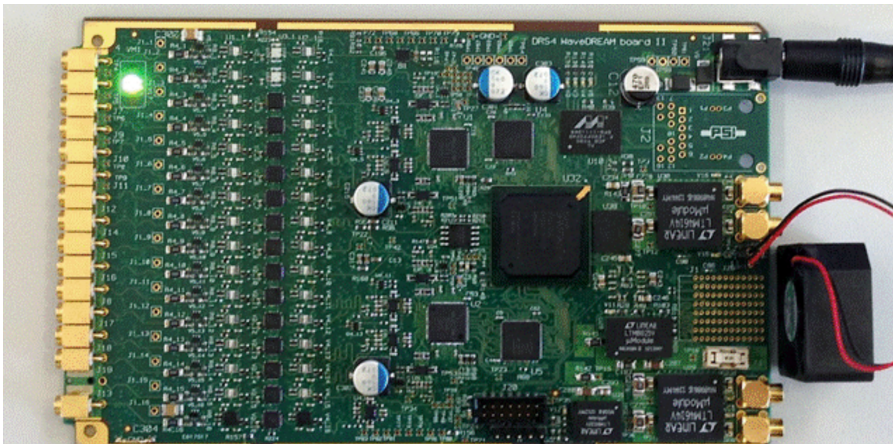
HV distribution
board

This parts need to be made

Trigger



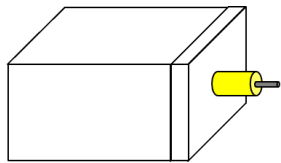
- Use two tiles from the MEG2 timing counters (12 cm x 4 cm), placed upstream and downstream of the drift tubes pack, instrumented with SiPM.



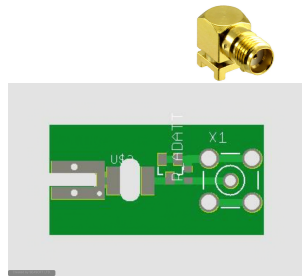
- Directly readout and powered by the DRS.
- Trigger logic accomplished by the DRS.
- Drift tubes timing defined by coincidence.

Front-end chain

These parts
need to be
better
defined
and tested
29/10



drift tubes
system



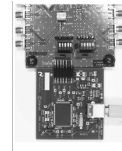
HV
decoupling
board



SMA
cable



DC LV power
supplies



12 amplifiers

or



SMA
cable



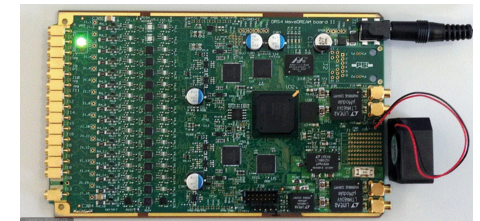
CERN
ethernet
line



Gigabit
switch



cat6
cable

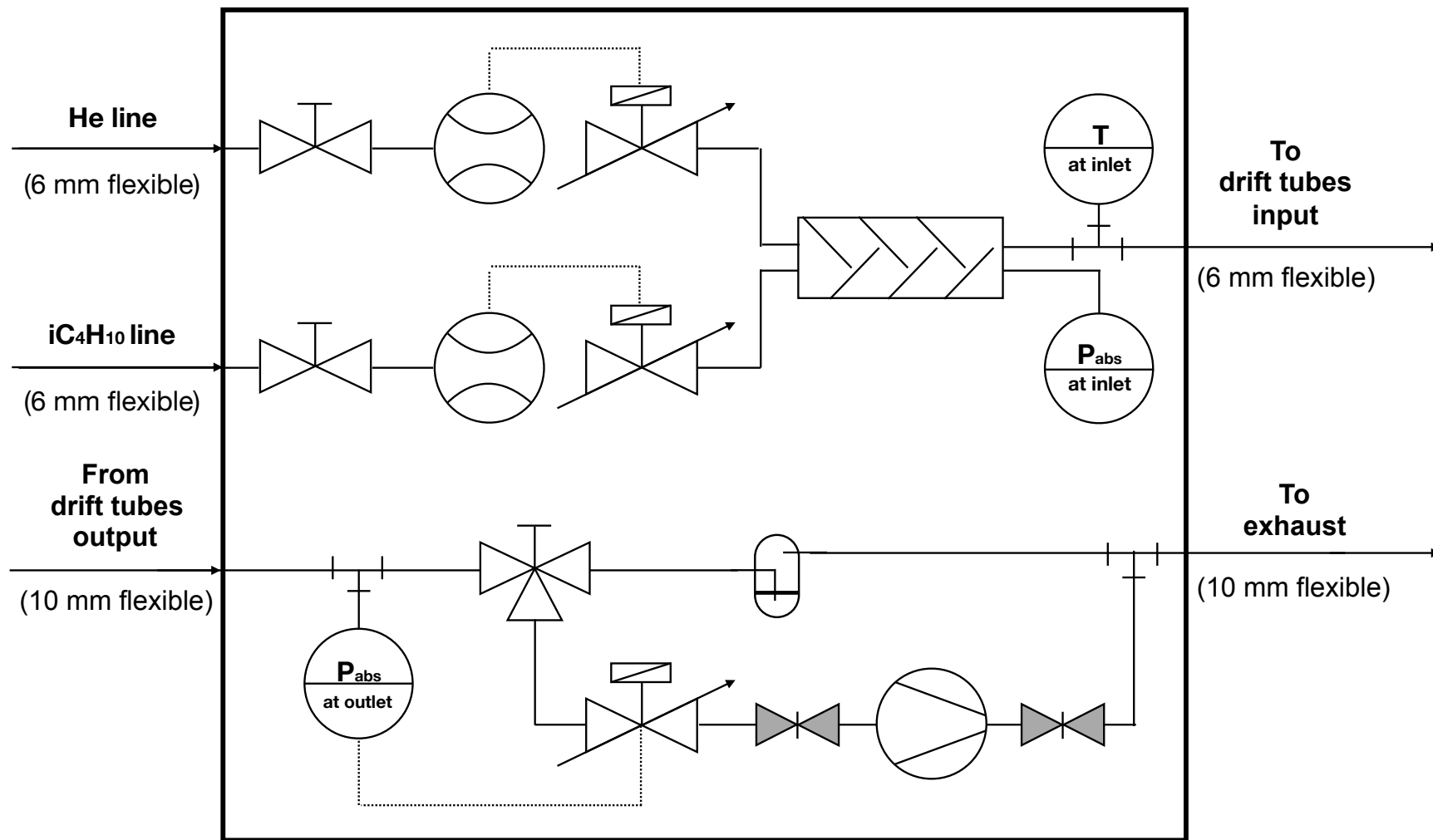


16 ch DRS board: readout and trigger logic



MEG2 scintillator tile read by SiPM

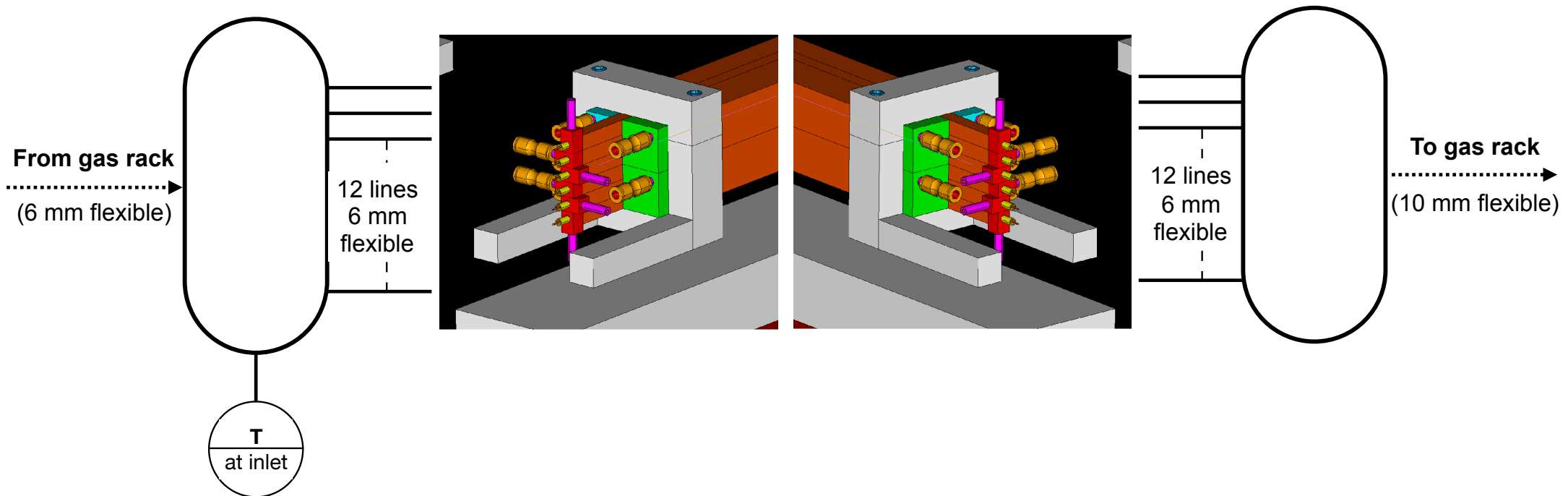
Gas distribution system at rack



Gas distribution system at pit

inlet manifold

outlet manifold



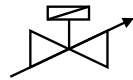
Legenda



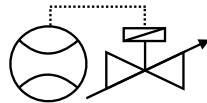
Manual two-way valve



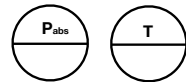
Manual three-way valve



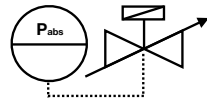
Flow control valve



Mass flow controller



Abs P and T indicators and transmitters



Pressure controlled proportional valve



Mechanical gas mixer



Pump



Quick plastic connector



Gas bubbler

List of materials and tasks

Mechanics

Brass tubes (6 + 3 + 2 + 3 spares) machined to size
Peek end caps (machined and drilled)
Brass tubes and peek end caps to be cleaned
Gas nipples (**to be glued to end caps**)
Wire feedthroughs
Sense wires (15, 20, 25, **30 μm**) (10 or 40 μm in alternative?)
Crimping tool (**to be refurbished**)
Ground lug soldering to tubes
Drift tubes wiring
End cap gluing
Gas fast connectors
Plastic tubing in/out-lets (one end swagelock for inlet)
Tube pack assembly fixtures
End cap shielding (**to be cut for gas and cables passage**)
Rotary, tilting and lifting fixture (**goniometer mount**)
Tube pack - tool **assembly**
Gas inlet manifold (**swagelock connectors to be soldered**)
Gas outlet manifolds (6+6 fast connectors)
Support for gas manifolds
HV and signal cables support fixture

Gas System

Gas rack assembled
Mass flowmeters
Baratron for absolute pressure (inlet and outlet)
Temperature probe (inlet)
Proportional valve
Pump (**automatic switching**)
Bubbler (**paraffin oil**)
Gas mixing controller
Proportional valve controller (**auto-working setup**)
Cables for flowmeters, Baratron, T probes, prop.valve

Electronics

Tele

Transport list (red = inventory)

Mechanics

Drift tubes setup

rotary, tilting and lifting table

Set of brass drift tubes

Gas manifold with T sensor

Gas system rack

Mass flowmeters (2 + 1 spare)

Baratron pressure sensors (2)

Proportional valve

Pump

Bubbler

Gas mixing controller

Proportional valve controller

Cables for controllers and sensors

Miscellanea of gas connectors

Miscellanea of Bosch components

Plastic tubing 6 mm, 8 mm, 10 mm

Electronics

Teledyne-LeCroy oscilloscope

Low voltage power supplies (2)

Low voltage cables

HV power supply CAEN SY5127

HV module CAEN 1535P 24 ch.

HV cable Radiall 24 ch.

Miscellanea of Lemo, BNC, SMA connectors and cables

Ethernet switch and cables

Amplifiers cards (to be defined)

Amplifiers Phillips 775 (2)

NIM power supply

DRS board and cables

PC (MacBook Air)

List of tools

Generic tools

Wrenches 2 sets
Adjustable wrench (2 sizes)
Allen wrench's (metric)
Socket wrench set
Screwdriver set
Battery drill and drill set
Solder iron
Tester
Tube cutter
Paraffin oil
Gas leak tester

rotary, tilting and lifting table
Set of brass drift tubes
Gas manifold with T sensor

Lista materiale da trasferire al CERN

Per Novosibirsk

Alimentatore al plasma
Filo Al 50 micron nudo
Monofilamento di C (?)

Sistema alta tensione

HV power supply CAEN SY1527 mainframe e modulo 1535P 24ch
HV Radiall con cavo 24 poli e 11 da saldare a HV distr. boards

Sistema del gas

pannello flowmeters, baratron (2), valvola proporzionale, pompa, bubbler
cavi per flowmeters, baratron, valvola proporzionale
Gas controller MKS
Controllore valvola proporzionale MKS
Inlet e outlet manifolds
12+12 tubi da 6 intestati da un lato per in/out-let
miscellanea di connettori swagelock (completi) da tubo da 6 e da 10
connessioni e riduzioni di varie misure
connettori rapidi da 6, 8, 10
tubo di rilsan da 6 e da 10 (eventualmente da acquistare al CERN)
tagliatubi
olio di paraffina per bubbolatore
cercafughe saponato

Meccanica

pacco di tubi con supporti, divisore e miscellanea varia
miscellanea di profilati Bosch con dadi e bulloni

Elettronica

oscillografo Teledyne 1GHz, 2 GSa/s, 12 bit, 4 ch
SMA, BNC e LEMO connettori vari
BNC-SMA vari
attenuatori BNC
ethernet switch e cavi (cat6 o superiore)
LV power supply per amplificatori con cavi e connettori
amplificatori e relativi cavi
2 x Phillips 775 + alimentatore NIM
DRS e relativi cavi
PC per acquisizione (MAC?)

Attrezzi

chiavi (doppio set), chiavi a bussola e chiavi inglesi
chiavi a brugola
attrezzi vari (set di giravite, pinze varie, tronchesi, forbici)
trapano con set di punte metallo
saldatore a stagno, pasta saldante e stagno
tester
ciabatte di alimentazione e adattatori per prese svizzere
nastri vari (carta, isolante, di rame, bi-adesivo, ...)
colla epossidica rapida
fascette femacavi

Lista materiale da preparare

Acquisti pendenti

cavi e connettori per Baratron, valvola prop., sonda T
connettore Radiall, cavo HV e guaina (CAEN)
schede distr. HV e segnale
pin di collegamento schede feedthroughs
HV resistenze e condensatori
connettori SMA da board
Cavi SMA-MCX per DRS
Connettori per sonda temperatura

HV distribution set up

tagliare 24 cavi HV e guaina da 3 m
intestare connettore Radiall HV 52 pin con 24 cavi HV
saldare seconda estremità cavi HV su HV distr. board
12 cavetti di massa da HV distr. board a HV cables

Sistema del gas

inlet and outlet manifolds
saldare swagelock su inlet manifold
11 tubi intestati da un lato per inlet
11 tubi intestati da un lato per outlet
cavi per Baratron (2)
cavo per valvola proporzionale
cavo e connettori per sonda temperatura
Box per lettura sonda temperatura

Meccanica

tappi tubi
connettori inlet e outlet per gas
connettori rapidi angolati da 6
feedthrough fili sense
sense wires da 15, 20, 25, 30 micron
ripristinare crimpatrice
filare 11 tubi a drift
fast-on per connessione massa saldati su tubi
completare supporto per pacco tubi
interfaccia pacco tubi con divisore/traslattore z
goniometro per rotazione
supporti per cavi HV e di segnale
supporti per tubi gas
supporti per gas manifolds
laser per allineamenti

Elettronica

montare schede di distribuzione HV (12 + spare)
montare schede di disaccoppiamento segnale (12 + spare)
12 cavi SMA da disaccoppiamento a pre-amplificatore
12 canali di amplificatore (inclusi 2x8 Phillips 775)
crate (alimentatore) NIM per Phillips 775
LV power supply e relativi cavi (+ spare)
12 cavi SMA da pre-amplificatore a DRS
supporti per amplificatori e cavi
cavi ethernet