

# Request Service from Fermilab

List of equipment, utilities, staffing and services need from Fermilab for target running and setup:

## Target Technician Area:

2 benches 25" X 100" (20 X 80 would be the smallest workable size)

space for about five 3' X 3' crates

space for a set of two tool boxes 2' X 2'

Wall mounted rack for hanging 3-4 target inserts: 4" diameter 5" top lip and 75" long

1 outlet with extension cable for 15A 120 VAC 60 Hz standard US plug: Needed to power varitemp heat gun

craftsman stay tool chest and rolling cabinet with several draws (UVA can supply if FNAL can not)

4 outlets with extensions 0.25-3A 110-120 VAC 50-60 Hz standard US plug (multiplex outlet OK): to power lakeshore readouts, solder irons, and PC

1 PC station desk with network connection for testing and recording sensor system on target insert

Two lite adjustable arm magnifying glasses (UVA can supply if FNAL can not)

Two soldering station preferred hot air and iron option (UVA can supply if FNAL can not)

1 single phase (208 VAC) for counting house target area if available

## Inside Cave:

4 separate outlets with extension cables for 20A 120 VAC 60 Hz standard US plug: Varitemp heat guns (supplied by FNAL) and leak checker (supplied by FNAL)

- Also used with extensions 4 0.25-3A 110-120 VAC 50-60 Hz standard US plug for readout device and auxiliary testing devices
- Multiplex outlet would only work if all 4 15A draws could run simultaneously

Safety setup: lights, ropes and signs for ODH and Magnetic field

At least one single phase 220 V (this is a backup source for testing so may not need permanent installation)

- Power Req: 200-240 V 50/60 Hz (prefer 208 V)
- Power consumption max: 3.3 kVA

Power source for actuator: not yet specified

Air for pneumatic valves (Main Gate Valve, there are two more pneumatic valves outside of cave: turbo and main backing pump)

Chiller water for microwave generator (this is the 1kW (actually 300 W) cooling power needed for the EIO chiller outside the cave)

## Outside Cave:

Separator Pump (KNF compressor)

- 115 V AC 880 W 60Hz

Turbo TMU1001 (target magnet insulating vacuum)

- Power supply: 590 W at 120V AC or 900 W at 220 V
- Backing Pump: 110/220V AC 370 W
- Turbo fan 110-120V AC 70 W

500L liquid helium added to liquifier per month

1 kW cooling power for the EIO

20L liquid nitrogen for magnet heat shield per day

3 He4-Gas K 2200psi (99.95%) bottles for gas flow controls

3 Nitrogen Gas K 2200psi bottles for gas flow controls

Liquid nitrogen supply for material handling and storage: 40L/week

Fume hooded (or storage area) for at least 4 International Cryogenics IC-20R liquid nitrogen storage dewars

Vent system for liquid nitrogen boil-off to go out of the cave

Deionized water (8 gallons + 1 gallon/week) for chillers used to cool the microwave generator, probably feed in through shielding to protect chiller (source of water should be resistivity at 1 MOHM-cm)

10 outlets with clean power (1mV RMS) and conditioner/surge-protector at 4A 110-120 VAC 50-60 Hz standard US plug (multiplex outlet OK) for NMR all on one isolated circuit with same ground

5 separate outlets with extension cables for 15A 120 VAC 60 Hz standard US plug located in close proximity to the cave: Needed to power varitemp heat guns (supplied by FNAL) and leak checker (supplied by FNAL)

10 outlet and extension cords for 4A 110-120 VAC 60 Hz standard US plug: various slow controls and electronics located within 35ft of cave, preferably near lower radiation area at this proximity

At least two single phase 220 V for Magnet and Microwave Generator

- Power Req: 200-240 V 50/60 Hz (prefer 208 V)
- Power consumption max: 3.3 kVA

Needs for setting up internal network at FNAL for target slow controls, access through firewall