

sPHENIX Water and Gas Services SLD

Peter's Working Copy (Rearranged by Kelly)

6/30/2022 PBH

sPHENIX Cooling Systems On-Carriage

GPM Now
 197 carriage (racks & detector)
 20 chiller platforms A&B
 35 DAQ room

Heat Load Now
 70 kW carriage (racks & detector)
 50 kW DAQ now

DAQ Room	Future IR & AH Needs	Racks	EMCAL SIPM	EMCAL Electr	TPOT	TPC Electronics	TPC Line Lasers (Detector)	TPC Diffuse Lasers (Carriage)	INTT Sensors/Staves	INTT ROCs	MVTX Sensors	MBD	sEPD Elec. Boxes (Carriage)
50 kW	20 kW future chillers	40 kW	2 kW (after 5 yrs)	12 kW	640 Watts	12 kW	400W total (8 lasers)	1.2 kWatts (6 lasers)	0.3 kW	3.2 kW	0.25 kW	0.4 kW	0.2 kW
2 X 6 kW each max	20 kW future racks	31 assigned Racks	64 sectors NE,NW,SE,SW	64 sectors NE,NW,SE,SW	2 lpm	NE,NW,SE,SW	4N 4S	3 N 3 S	2 half's	North/South	2 half's	North/South	North/south
2 kW Trigger rack	40 kW (total)	See ICD 042	0C to 15C +/- 1C	20C (68F)	18C	18C (65F)	18C need flow	20C (68F), 6 gpm total	18C (65F)	20C (68F)	20C (68F)	25-35C (77-95F)	20C (68F)

sPHENIX Usage

ECW
133 kW
263 GPM
Supply @ 20C (68F)
Dry Comp Air
54 CFM
22 F
Filtered & Dried
Nitrogen gas
166 LPM
25 psi at GH
Boil off from LN2
TPC Exp gas
Ar-CF4 60%-40%
16 lpm, (recirculation)
0.5" w.c.
TPOT Exp gas
Ar-ISO 95%-5%
0.5 lpm
0.5" w.c.

