



DAΦNE TECHNICAL NOTE

INFN - LNF, Accelerator Division

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Note: **DI-6**

UTILITIES REQUIREMENTS FOR DAΦNE LINAC.

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As follow up of the LINAC Final Conceptual Design approval (April 30, 1992) we report the as-today TITAN-BETA requirements for the electric and cooling system which has to be supplied by L.N.F.

1. Cooling Water Requirements

The general request of TITAN BETA is 700 GPM (32°C max, 20 PSI drop, 20 PSI return) tap water.

The pipelines (2+2) must be terminated with 5" flanges .

2. Max Electric Power Requirements

	Quantity	Each kVA(V)	Total
Modulator	4	40(380Vac-3Φ)	<u>160 kVA</u>
Modulator control	4	5(220Va)	20 kVA
Klystron focus	4	30(380Vac-3Φ)	<u>120 kVA</u>
Heater control	4	30(220Vac)	120 kVA
R.F. driver amplifier	4	1.5(220Vac)	6 kVA
E-GUN	1	2.0(220Vac)	2 kVA
Helmholtz magnet P.S.	14	Series powered	<u>45 kVA</u>
Positron Converter P.S.	1	75 (380Vac-3Φ)	<u>75 kVA</u>
Control P.C.	1	3 (220Vac)	3 kVA
Positron capture magnet	?	? (380Vac-3Φ)	<u>360 kVA</u>
Line Qpoles e Magnets P.S.	?	? (380Vac-3Φ)	<u>56 kVA</u>

Vacuum P.S.	1	2 (220 Vac)	2 kVA
R.F source and predriver			
Local master control			
Magnet power control			
Vacuum monitor control			
Water system control			
Master trigger generator	1	3.5(220Vac)	4 kVA
LINAC water system	1	120(380Vac-3Φ)	<u>120 kVA</u>
Accessory Water system	1	40(380Vac-3Φ)	<u>40 kVA</u>

SYSTEM POWER REQUIREMENTS
 (TITAN BETA drawing D 4715)

976kVA 380 Vac 3 phase
157kVA 220 Vac

The additional electric power needed for the facilities is :

Cooling tower	1	50kVA
Linac tunnel ventilation	1	15kVA
Crane (modulator hall)	1	
Crane (linac head)	1	
Crane (linac tunnel)	1	50kVA
Compressed air	1	40kVA
Conditioned water/air mods	1	50kVA
Laboratory	1	50kVA
Service outlets linac tunnel	1	50kVA
Service outlets mod. hall	1	100kVA
Buildings illumination	3	25kVA
Transfer lines L./DR/F	?	300kVA

Facilities electric power requirements **430+300 kVA**

The total electric power is estimated to be **1563+300 kVA.**