



Aperture radius	27.0 mm
Max. integrated gradient	2.22 Tm/m
Nom. integrated gradient	1.83 Tm/m
Maximum current	100 A
Nominal current	80 A
Iron length	80 mm
Magnetic length	104 mm
Total length	105 mm
Magnet width	202 mm
Magnet mass	20 kg
Magnet resistance @ 20°C	383 mΩ
Magnet inductance	10.8 mH
Air cooling	



Power Requirements



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DTL & CCDT EMQ

SPL LP operation (ultimate)	DTL	CCDTL	PIMS	
Repetition frequency	2.0	2.0	2.0	Hz
Total cycle time	500	500	500	ms
Rise time	2.2	2.2	2.6	ms
Stabilization time	1.0	1.0	1.0	ms
Minimum stable flat top length	1.0	1.0	1.0	ms
Total flat top length	2.0	2.0	2.0	ms
Fall time	2.6	2.6	3.2	ms
Off time	493.2	493.2	492.2	ms
Max. current	100	100	100	A
Max. RMS current	8.5	8.5	8.9	A
Max. power dissipation	28.8	28.8	31.6	W
Max. temperature rise	~22	~22	~25	°C
Max. voltage on magnet	494	494	419	V
Max. voltage on converter	504	504	862*	V

* Assuming that 2 quadrupoles are connected in series (PIMS)

Common quadrupole design for DTL, CCDTL & PIMS taking into account:

- Available longitudinal and transversal space
- Enlarged aperture to insert pick-up
- Requirements for gradient and field homogeneity
- Up to 1 ms delay to allow field stabilization after ramping
- Linac4 and Low-power SPL operation (2 Hz, 1 ms stable flat top)
- Possibility to connect two magnets in series (PIMS)
- Power converter requirements ($V_{\max} < 900 \text{ V}$)